ANALOG WAY®

USER'S MANUAL

VIO 1600™

MODELS: V301 & V301-ID1

ULTRA VIO™

MODEL: VU301-IOD1

TABLE OF CONTENTS

SAFETY INSTRUCTIONS 2
QUICK START GUIDE - VIO1600™ 5
QUICK START GUIDE - ULTRA VIO™ 6
Chapter 1 : INTRODUCTION 7
Chapter 2 : STARTING 10
Chapter 3 : OPERATING MODE 15
Chapter 4 : FRONT PANEL DISPLAY MENUS DESCRIPTION 16
Chapter 5 : UPDATING THE DEVICE 25
Chapter 6 : REMOTE CONTROL SOFTWARE 26
Chapter 7 : TECHNICAL SPECIFICATIONS 29
APPENDIX A: PROGRAMMER'S GUIDE 33
WARRANTY 39

ENGLISH

SAFETY INSTRUCTIONS

All of the safety and operating instructions should be read before the product is operated and should be retained for further reference. Please follow all of the warnings on this product and its operating instructions.

CAUTION:

WARNING: To prevent the risk of electric shock and fire, do not expose this device to rain, humidity or intense heat sources (such as heaters or direct sunlight). Slots and openings in the device are provided for ventilation and to avoid overheating. Make sure the device is never placed on or near a textile surface that could block the openings. Also keep away from excessive dust, vibrations and shocks.

POWER: Only use the power supply indicated on the device or on the power source. Devices equipped with a grounding plug should only be used with a grounding type outlet. In no way should this grounding be modified, avoided or suppressed.

POWER CORD: Use the On (I) / Off (O) switch to power On or Off devices equipped with that switch. All other devices should be plugged and unplugged from wall outlet. In both cases, please follow these instructions:

- The power cord of the device should be unplugged from the outlet when left unused for several days.
- To unplug the device, do not pull on the power cord but always on the plug itself.
- The outlet should always be near the device and easily accessible.
- Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them.

If the power supply cord is damaged, unplug the device. Using the device with a damaged power supply cord may expose you to electric shocks or other hazards. Verify the condition of the power supply cords once in a while. Contact your dealer or service center for replacement if damaged.

CONNECTIONS: All inputs and outputs (except for the power input) are TBTS defined under EN60950.

SERVICING: Do not attempt to service this product yourself by opening or removing covers and screws since it may expose you to electric shocks or other hazards. Refer all problems to qualified service personnel.

OPENINGS: Never push objects of any kind into this product through the openings. If liquids have been spilled or objects have fallen into the device, unplug it immediately and have it checked by a qualified technician.

INSTRUCTIONS DE SÉCURITÉ

Afin de mieux comprendre le fonctionnement de cet appareil nous vous conseillons de bien lire toutes les consignes de sécurité et de fonctionnement de l'appareil avant utilisation. Conserver les instructions de sécurité et de fonctionnement afin de pouvoir les consulter ultérieurement. Respecter toutes les consignes marquées dans la documentation, sur le produit et sur ce document.

ATTENTION : Afin de prévenir tout risque de choc électrique et d'incendie, ne pas exposer cet appareil à la pluie, à l'humidité et aux sources de chaleur intense.

INSTALLATION : Veillez à assurer une circulation d'air suffisante pour éviter toute surchauffe à l'intérieur de l'appareil. Ne placez pas l'appareil sur ou proximité de surface textile susceptible d'obstruer les orifices de ventilation. N'installez pas l'appareil à proximité de sources de chaleur comme un radiateur ou une bouche d'air chaud, ni dans un endroit exposé au rayonnement solaire direct, à des poussières excessives, à des vibrations ou à des chocs mécaniques. Ceci pourrait provoquer un mauvais fonctionnement et un accident.

ALIMENTATION : Ne faire fonctionner l'appareil qu'avec la source d'alimentation indiquée sur l'appareil ou sur son bloc alimentation. Pour les appareils équipés d'une alimentation principale avec fil de terre, ils doivent être obligatoirement connectés sur une source équipée d'une mise à la terre efficace. En aucun cas cette liaison de terre ne devra être modifiée, contournée ou supprimée.

CORDON D'ALIMENTATION : Pour les appareils équipés d'un interrupteur général (Marche I / Arrêt O), la mise sous tension et la mise hors tension se fait en actionnant cet interrupteur général. Pour les appareils sans interrupteur général, la mise sous tension et la mise hors tension se fait directement en connectant et déconnectant le cordon d'alimentation de la prise murale.
Dans les 2 cas ci-dessus appliquer les consignes suivantes :

- Débrancher le cordon d'alimentation de la prise murale si vous prévoyez de ne pas utiliser l'appareil pendant quelques jours ou plus.
- Pour débrancher le cordon, tirez le par la fiche. Ne tirez jamais sur le cordon proprement dit.
- La prise d'alimentation doit se trouver à proximité de l'appareil et être aisément accessible.
- Ne laissez pas tomber le cordon d'alimentation et ne posez pas d'objets lourds dessus.

Si le cordon d'alimentation est endommagé, débranchez le immédiatement de la prise murale. Il est dangereux de faire fonctionner cet appareil avec un cordon endommagé, un câble abîmé peut provoquer un risque d'incendie ou un choc électrique. Vérifier le câble d'alimentation de temps en temps. Contacter votre revendeur ou le service après vente pour un remplacement.

CONNEXIONS : Toutes les entrées et sorties (exceptée l'entrée secteur) sont de type TBTS (Très Basse Tension de Sécurité) définies selon EN 60950.

RÉPARATION ET MAINTENANCE : L'utilisateur ne doit en aucun cas essayer de procéder aux opérations de dépannage, car l'ouverture des appareils par retrait des capots ou de toutes autres pièces constituant les boîtiers ainsi que le dévissage des vis apparentes à l'extérieur, risque d'exposer l'utilisateur à des chocs électriques ou autres dangers. Contacter le service après vente ou votre revendeur ou s'adresser à un personnel qualifié uniquement.

OUVERTURES ET ORIFICES : Les appareils peuvent comporter des ouvertures (aération, fentes, etc...), veuillez ne jamais y introduire d'objets et ne jamais obstruer ses ouvertures. Si un liquide ou un objet pénètre à l'intérieur de l'appareil, débranchez immédiatement l'appareil et faites le contrôler par un personnel qualifié avant de le remettre en service.

ISTRUZIONI DI SICUREZZA

Allo scopo di capire meglio il funzionamento di questa apparecchiatura vi consigliamo di leggere bene tutti i consigli di sicurezza e di funzionamento prima dell'utilizzo. Conservare le istruzioni di sicurezza e di funzionamento al fine di poterle consultare ulteriormente. Seguire tutti i consigli indicati su questo manuale e sull'apparecchiatura.

ATTENZIONE : Al fine di prevenire qualsiasi rischio di shock elettrico e d'incendio, non esporre l'apparecchiatura a pioggia, umidità e a sorgenti di eccessivo calore.

INSTALLAZIONE : Assicuratevi che vi sia una sufficiente circolazione d'aria per evitare qualsiasi surriscaldamento all'interno dell'apparecchiatura. Non collocare l'apparecchiatura in prossimità o su superfici tessili suscettibili di ostruire il funzionamento della ventilazione. Non installate l'apparecchiatura in prossimità di sorgenti di calore come un radiatore o una fuoruscita d'aria calda, né in un posto esposto direttamente ai raggi del sole, a polvere eccessiva, a vibrazioni o a shock meccanici. Ció potrebbe provocare un erroneo funzionamento e un incidente.

ALIMENTAZIONE : Far funzionare l'apparecchiatura solo con la sorgente d'alimentazione indicata sull'apparecchiatura o sul suo alimentatore. Per le apparecchiature fornite di un'alimentazione principale con cavo di terra, queste devono essere obbligatoriamente collegate su una sorgente fornita di una efficiente messa a terra. In nessun caso questo collegamento potrà essere modificato, sostituito o eliminato.

CAVO DI ALIMENTAZIONE : Per le apparecchiature fornite di interruttore generale (Acceso I / Spento O), l'accensione e lo spegnimento dell'apparecchiatura si effettuano attraverso l'interruttore. Per le apparecchiature senza interruttore generale, l'accensione e lo spegnimento si effettuano direttamente inserendo o disinserendo la spina del cavo nella presa murale.
In entrambe i casi applicare i seguenti consigli :

- Disconnettere l'apparecchiatura dalla presa murale se si prevede di non utilizzarla per qualche giorno.
- Per disconnettere il cavo tirare facendo forza sul connettore.
- La presa d'alimentazione deve trovarsi in prossimità dell'apparecchiatura ed essere facilmente accessibile.
- Non far cadere il cavo di alimentazione né appoggiarci sopra degli oggetti pesanti.

Se il cavo di alimentazione é danneggiato, spegnere immediatamente l'apparecchiatura. E' pericoloso far funzionare questa apparecchiatura con un cavo di alimentazione danneggiato, un cavo graffiato puó provocare un rischio di incendio o uno shock elettrico. Verificare il cavo di alimentazione spesso. Contattare il vostro rivenditore o il servizio assistenza per una sostituzione.

CONNESSIONE : Tutti gli ingressi e le uscite (eccetto l'alimentazione) sono di tipo TBTS definite secondo EN 60950.

RIPARAZIONI E ASSISTENZA : L'utilizzatore non deve in nessun caso cercare di riparare l'apparecchiatura, poiché con l'apertura del coperchio metallico o di qualsiasi altro pezzo costituente la scatola metallica, nonché svitare le viti che appaiono esteriormente, poiché ció puó provocare all'utilizzatore un rischio di shock elettrico o altri rischi.

APERTURE DI VENTILAZIONE : Le apparecchiature possono comportare delle aperture di ventilazione, si prega di non introdurre mai oggetti o ostruire le sue fessure. Se un liquido o un oggetto penetra all'interno dell'apparecchiatura, disconnetterla e farla controllare da personale qualificato prima di rimetterla in servizio.

SICHERHEITSHINWEISE

Um den Betrieb dieses Geräts zu verstehen, raten wir Ihnen vor der Inbetriebnahme alle Sicherheits- und Betriebsanweisungen genau zu lesen. Diese Sicherheits- und Betriebsanweisungen für einen späteren Gebrauch sicher aufbewahren. Alle in den Unterlagen, an dem Gerät und hier angegebenen Sicherheitsanweisungen einhalten.

VORSICHT & WARNUNG

ACHTUNG: um jegliches Risiko eines Stromschlags oder Feuers zu vermeiden, das Gerät nicht Regen, Feuchtigkeit oder intensiven Wärmequellen aussetzen.

EINBAU : Eine ausreichende Luftzufuhr sicherstellen, um jegliche Überhitzung im Gerät zu vermeiden. Das Gerät nicht auf und in Nähe von Textiloberflächen, die Belüftungsöffnungen verschließen können, aufstellen. Das Gerät nicht in Nähe von Wärmequellen, wie z.B. Heizkörper oder Warmluftkappe, aufstellen und es nicht dem direkten Sonnenlicht, übermäßigem Staub, Vibrationen oder mechanischen Stößen aussetzen. Dies kann zu Betriebsstörungen und Unfällen führen.

STROMVERSORGUNG : Das Gerät nur mit der auf dem Gerät oder dem Netzteil angegebenen Netzspannung betreiben. Geräte mit geerdeter Hauptstromversorgung müssen an eine Stromquelle mit effizienter Erdung angeschlossen werden. Diese Erdung darf auf keinen Fall geändert, umgangen oder entfernt werden.

DEUTSCH

STROMKABEL : Für Geräte mit einem Hauptschalter (Ein/Aus) erfolgt die Stromversorgung und Unterbrechung mittels dieses Hauptschalters. Geräte ohne Hauptschalter werden durch das Einstecken oder Herausziehen des Steckers in den Wandanschluß ein- oder ausgeschaltet. Für beide Fälle gelten folgende Richtlinien :

- Den Stecker aus dem Wandanschluß herausziehen wenn Sie das Gerät mehrere Tage oder länger nicht benutzen.
- Das Kabel mittels dem Stecker herausziehen. Niemals am Stromkabel selbst ziehen.
- Die Steckdose muß sich in der Nähe des Geräts befinden und leicht zugänglich sein.
- Das Stromkabel nicht fallen lassen und keine schweren Gegenstände auf es stellen.

Wenn das Stromkabel beschädigt ist, das Gerät sofort abschalten. Es ist gefährlich das Gerät mit einem beschädigten Stromkabel zu betreiben; ein abgenutztes Kabel kann zu einem Feuer oder Stromschlag führen. Das Stromkabel regelmäßig untersuchen. Für den Ersatz, wenden Sie sich an Ihren Verkäufer oder Kundendienststelle.

ANSCHLÜSSE : Bei allen Ein- und Ausgängen (außer der Stromversorgung) handelt es sich, gemäß EN 60950, um Sicherheits- Kleinspannunganschlüsse.

REPARATUR UND WARTUNG : Der Benutzer darf keinesfalls versuchen das Gerät selbst zu reparieren, die Öffnung des Geräts durch Abnahme der Abdeckhaube oder jeglichen anderen Teils des Gehäuses sowie die Entfernung von außen sichtbaren Schrauben zu Stromschlägen oder anderen Gefahren für den Benutzer führen kann. Wenden Sie sich an Ihren Verkäufer, Ihre Kundendienststelle oder an qualifizierte Fachkräfte.

ÖFFNUNGEN UND MUNDUNGEN : Die Geräte können über Öffnungen verfügen (Belüftung, Schlitze, usw.). Niemals Gegenstände in die Öffnungen einführen oder die Öffnungen verschließen. Wenn eine Flüssigkeit oder ein Gegenstand in das Gerät gelangt, den Stecker herausziehen und es vor einer neuen Inbetriebnahme von qualifiziertem Fachpersonal überprüfen lassen.

INSTRUCCIONES DE SEGURIDAD

Para comprender mejor el funcionamiento de este aparato, le recomendamos que lea cuidadosamente todas las consignas de seguridad y de funcionamiento del aparato antes de usarlo. Conserve las instrucciones de seguridad y de funcionamiento para que pueda consultarlas posteriormente. Respete todas las consignas indicadas en la documentación, relacionadas con el producto y este documento.

PRECAUCIONES Y OBSERVACIONES

CUIDADO : Para prevenir cualquier riesgo de choque eléctrico y de incendio, no exponga este aparato a la lluvia, a la humedad ni a fuentes de calorintensas.

INSTALACIÓN : Cerciórese de que haya una circulación de aire suficiente para evitar cualquier sobrecalentamiento al interior del aparato. No coloque el aparato cerca ni sobre una superficie textil que pudiera obstruir los orificios de ventilación. No instale el aparato cerca de fuentes de calor como radiador o boca de aire caliente, ni en un lugar expuesto a los rayos solares directos o al polvo excesivo, a las vibraciones o a los choques mecánicos. Esto podría provocar su mal funcionamiento o un accidente.

ESPAÑOL

ALIMENTACIÓN : Ponga a funcionar el aparato únicamente con la fuente de alimentación que se indica en el aparato o en su bloque de alimentación. Los aparatos equipados con una alimentación principal con hilo de tierra deben estar conectados obligatoriamente a una fuente equipada con una puesta a tierra eficaz. Por ningún motivo este enlace de tierra deberá ser modificado, cambiado o suprimido.

CABLE DE ALIMENTACIÓN : Para los aparatos equipados con un interruptor general (Marcha I / Paro O), la puesta bajo tensión y la puesta fuera de tensión se hace accionando este interruptor general.. En los aparatos que no tienen interruptor general, la puesta bajo tensión y la puesta fuera de tensión se hace directamente conectando y desconectando el enchufe mural.
En ambos casos, se deberá respetar las siguientes consignas:

- Desconectar el aparato del enchufe mural si no piensa utilizarlo durante varios días.
- Para desconectar el cable, tire de la clavija. No tire nunca del cable propiamente dicho.
- El enchufe de alimentación debe estar cerca del aparato y ser de fácil acceso.
- No deje caer el cable de alimentación ni coloque objetos pesados encima de él.

Si el cable de alimentación sufriera algún daño, ponga el aparato inmediatamente fuera de tensión. Es peligroso hacer funcionar este aparato con un cable averiado, ya que un cable dañado puede provocar un incendio o un choque eléctrico. Verifique el estado del cable de alimentación de vez en cuando. Póngase en contacto con su distribuidor o con el servicio de posventa si necesita cambiarlo.

CONEXIONES : Todas las entradas y salidas (excepto la entrada del sector) son de tipo TBTS (Muy Baja Tensión de Seguridad) definidas según EN 60950.

REPARACIÓN Y MANTENIMIENTO : Por ningún motivo, el usuario deberá tratar de efectuar operaciones de reparación, ya que si abre los aparatos retirando el capó o cualquier otra pieza que forma parte de las cajas o si destornilla los tornillos aparentes exteriores, existe el riesgo de producirse una explosión, choques eléctricos o cualquier otro incidente. Contacte el servicio de posventa, a su distribuidor o dirigirse con personal cualificado únicamente.

ABERTURAS Y ORIFICIOS : Los aparatos pueden contener aberturas (aireación, ranuras, etc.). No introduzca allí ningún objeto ni obstruya nunca estas aberturas. Si un líquido o un objeto penetra al interior del aparato, desconéctelo y hágalo revisar por personal cualificado antes de ponerlo nuevamente en servicio.

QUICK START GUIDE - VIO1600™

ANALOG WAY — EDITION : 06/05

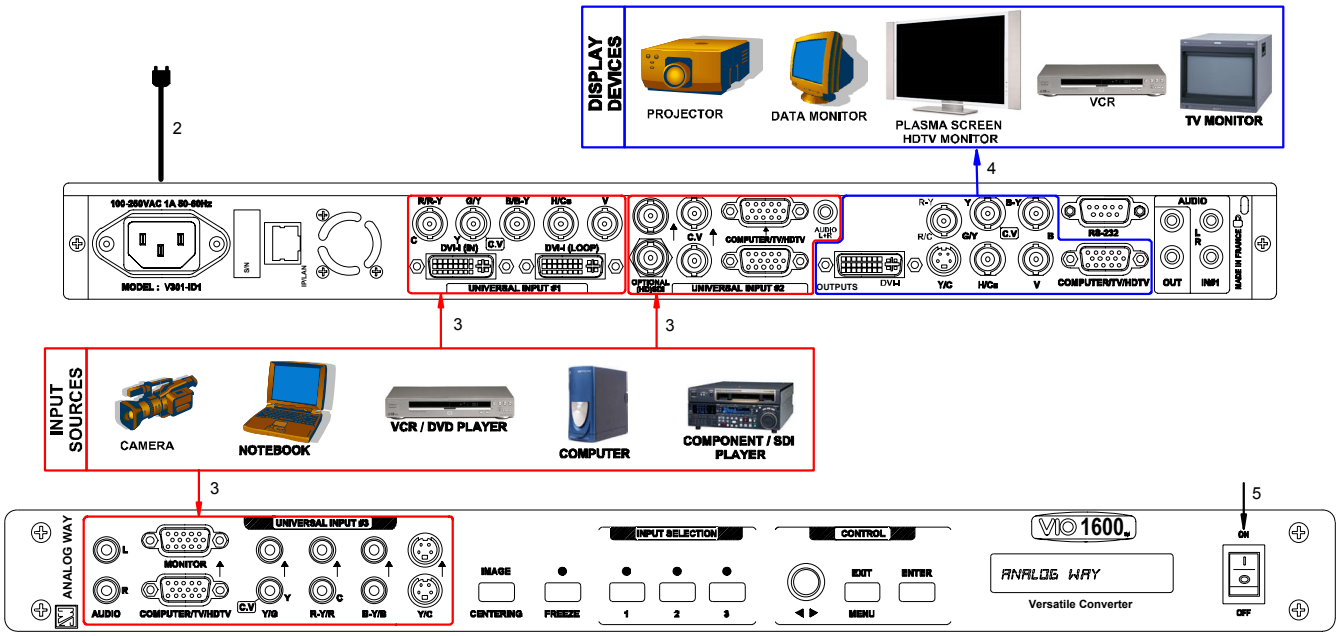
CONNECTIONS:

① Turn OFF all of your equipment before connecting.
② Connect the AC power supply cord to the VIO1600 and to an AC power outlet.
③ Connect your computer & video sources to the 3 universal inputs of the VIO1600.
- If you need to connect a digital computer source, use the input #1 (DVI-I IN connector).
- If you need to connect a SDI or HDSDI video source, use the input #2 (V301-ID1 version only).
- Connect your others sources to the unused inputs.

IMPORTANT: Connect only one source by input.

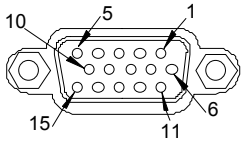
④ Connect your Hi-Resolution display device (projector, plasma screen...) to the HD15 or BNC connectors, or connect your video display device (TV, VCR...) to the C.V, Y/C or RGB connectors, or connect your DVI display device to the DVI-I connector.
IMPORTANT: Connect only one display device to the output.
⑤ Turn ON the VIO1600 (front panel switch). Then turn ON all your input sources, and then your display device.

• VIO1600 connection diagram:



• HD15 connector pin assignment (inputs #2 & #3 - input #1 with the DVI/HD15 adaptor):

SIGNAL	COMPUTER (analog)	RGB/S VIDEO	YUV & HDTV (analog)	S.VIDEO (Y/C)	COMPOSITE VIDEO
PIN 1	RED.	RED.	Cr / Pr.	C (chrominance).	
PIN 2	GREEN.	GREEN.	Y.	Y (luminance).	VIDEO (NTSC, PAL...)
PIN 3	BLUE.	BLUE.	Cb / Pb.		
PIN 6	RED return.	RED return.	Cr / Pr return.	C return.	
PIN 7	GREEN return.	GREEN return.	Y return.	Y return.	return.
PIN 8	BLUE return.	BLUE return.	Cb / Pb return.		
PIN 10	GND.	GND.			
PIN 13	H sync or C sync (S).	C sync (S).			
PIN 14	V sync.				



SETTINGS:

① We recommend resetting the VIO1600 device to all of its **default values**, with the front panel display menu (**CONTROL > default value > yes**) before proceeding.
② Select the **input type** connected to the **INPUTS** with the front panel display menu (**INPUT > input type**).
③ Select the **output type & format** which corresponds to your display with the front panel display menu (**OUTPUT > output type**).
④ Select one of the **output rate** available with the front panel display menu (**OUTPUT > output rate**).
⑤ For computer source, select the **output sync** type with the front panel display menu (**OUTPUT > output sync**).
⑥ Display the **grid pattern** with the front panel display menu (**OUTPUT > test pattern > grid**), and display a black output.
⑦ Adjust directly the display device itself, using its position and size controls, to fill the grid pattern in full screen.
⑧ Display the centering pattern (**OUTPUT > test pattern > centering**).
⑨ For each input source connected to the VIO1600, make the following adjustments:
- Select the source you want to adjust (with the front panel "INPUT SELECTION" buttons).
- Select the aspect ratio of your input source with the front panel display menu (**IMAGE > aspect ratio in**).
- Press the **Image Centering** front panel button to automatically position the image in the **Centering pattern**.

IMPORTANT: For best results, display a full size bright image (no black border) to perform a centering. If necessary, correct the adjustment with the position & size functions (**IMAGE > pos settings**).

NOTE: The centering function is only available for computer sources.
- If needed, make the others adjustments, available in the **IMAGE** menu (color, brightness…).

QUICK START GUIDE - ULTRA VIO™

ANALOG WAY — EDITION : 06/05

CONNECTIONS:

① Turn OFF all of your equipment before connecting.
② Connect the AC power supply cord to the ULTRA VIO and to an AC power outlet.
③ Connect your computer & video sources to the 3 universal inputs of the ULTRA VIO.
- If you need to connect a digital computer source, use the input #1 (DVI-I IN connector).
- If you need to connect a SDI or HDSDI video source, use the input #2.
- Connect your others sources to the unused inputs.

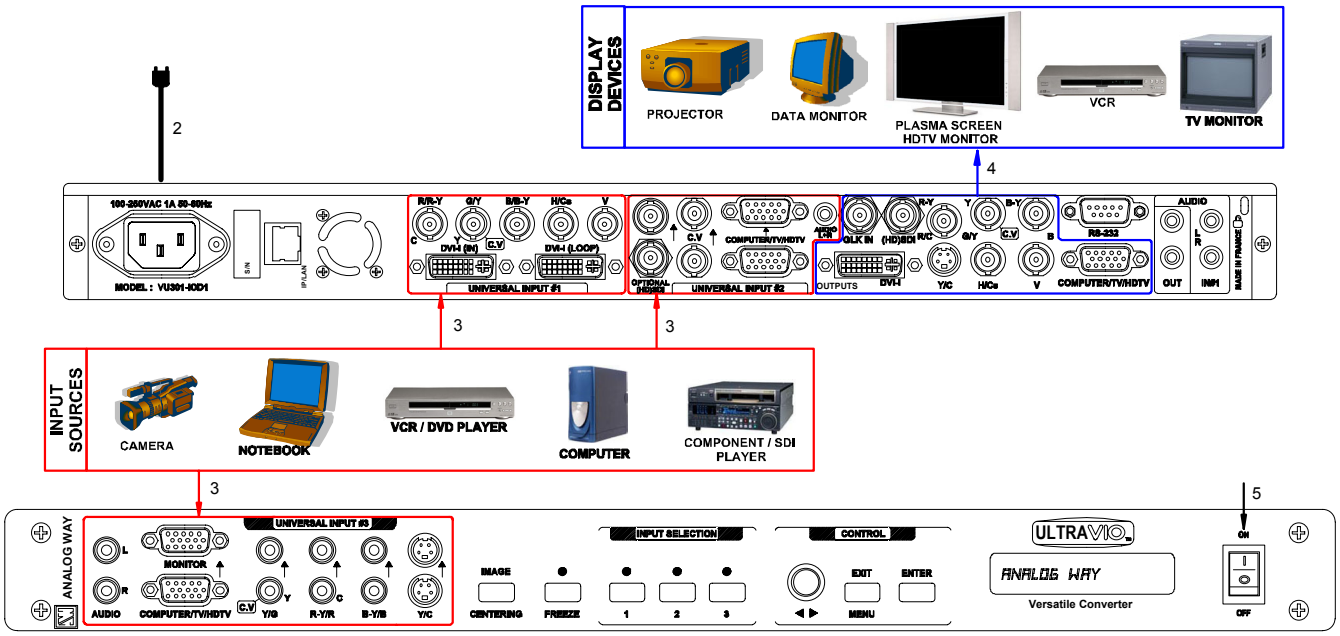
IMPORTANT: Connect only one source by input.

④ Connect your Hi-Resolution display device (projector, plasma screen...) to the HD15 or BNC connectors, or connect your video display device (TV, VCR...) to the C.V, Y/C or RGB connectors, or connect your DVI display device to the DVI-I connector, or connect your digital display device to the (HD)SDI BNC connector.

IMPORTANT: Connect only one display device to the output.

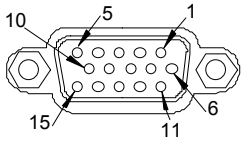
⑤ Turn ON the ULTRA VIO (front panel switch). Then turn ON all your input sources, and then your display device.

• **ULTRA VIO connection diagram:**



• **HD15 connector pin assignment (inputs #2 & #3 - input #1 with the DVI/HD15 adaptor):**

SIGNAL	COMPUTER (analog)	RGB/S VIDEO	YUV & HDTV (analog)	S.VIDEO (Y/C)	COMPOSITE VIDEO
PIN 1	RED.	RED.	Cr / Pr.	C (chrominance).	
PIN 2	GREEN.	GREEN.	Y.	Y (luminance).	VIDEO (NTSC, PAL...)
PIN 3	BLUE.	BLUE.	Cb / Pb.		
PIN 6	RED return.	RED return.	Cr / Pr return.	C return.	
PIN 7	GREEN return.	GREEN return.	Y return.	Y return.	return.
PIN 8	BLUE return.	BLUE return.	Cb / Pb return.		
PIN 10	GND.	GND.			
PIN 13	H sync or C sync (S).	C sync (S).			
PIN 14	V sync.				



SETTINGS:

① We recommend resetting the ULTRA VIO device to all of its **default values**, with the front panel display menu (**CONTROL > default value > yes**) before proceeding.
② Select the **input type** connected to the **INPUTS** with the front panel display menu (**INPUT > input type**).
③ Select the **output type & format** which corresponds to your display with the front panel display menu (**OUTPUT > output type**).
④ Select one of the **output rate** available with the front panel display menu (**OUTPUT > output rate**).
⑤ For computer source, select the **output sync** type with the front panel display menu (**OUTPUT > output sync**).
⑥ Display the **grid pattern** with the front panel display menu (**OUTPUT > test pattern > grid**), and display a black output.
⑦ Adjust directly the display device itself, using its position and size controls, to fill the grid pattern in full screen.
⑧ Display the centering pattern (**OUTPUT > test pattern > centering**).
⑨ For each input source connected to the ULTRA VIO, make the following adjustments:
- Select the source you want to adjust (with the front panel "INPUT SELECTION" buttons).
- Select the aspect ratio of your input source with the front panel display menu (**IMAGE > aspect ratio in**).
- Press the **Image Centering** front panel button to automatically position the image in the **Centering pattern**.

IMPORTANT: For best results, display a full size bright image (no black border) to perform a centering. If necessary, correct the adjustment with the position & size functions (**IMAGE > pos settings**).

NOTE: The centering function is only available for computer sources.
- If needed, make the others adjustments, available in the **IMAGE** menu (color, brightness…).

VIO1600™ & ULTRA VIO™

CHAPTER 1 : INTRODUCTION

1-1. ACCESSORIES SUPPLIED WITH YOUR DEVICE

- 1 AC Power supply cord.
- 1 VGA cable (HD15 male / male connector).
- 1 S.VIDEO (Y/C) cable (4-pin mini DIN male / 2 BNC male connectors).
- 1 BNC (x5) to BNC (x5) cable (male / male).
- 1 DVI-D / DVI-D cable (male / male).
- 1 DVI / HD15 adaptor (male / female).
- 1 CD-ROM (Remote Control Software).
- 1 User's Manual.

Supplied equipment with the OPT-RMK1 option:

- 2 rack mount brackets.
- 6 screws.

1-2. GENERAL INFORMATION

VIO1600 by **Analog Way** is a **multipurpose Switcher / Converter / Interface**, with 3 universal inputs. It accepts a large range of formats, from computer to video and HDTV, in analog or digital format, and a large range of connectors: BNC, HD15, DVI, mini DIN 4, Cinch, RCA. The output provides the same diversity of formats, type of signals and connectors.

- 3 UNIVERSAL INPUTS: Each input features an active loopthrough (monitoring) for easy control of the sources and accepts the following TV formats:
NTSC/PAL/SECAM, S.VIDEO, RGB or YUV, HDTV in HDYUV and computer formats: up to UXGA.
Input 1 also accepts DVI-I. An optional 10 bit SDI / HDSDI input is available on input 2.

- OUTPUT: VIO1600 generates various output formats: PAL, NTSC, Y/C, YUV or computer, in analog RGB or digital DVI.
More than a powerful multi-format converter, **VIO1600** is also a smooth and fast Switcher.

VIO1600 is a universal device with four functions in one: Scan Converter, Scaler, Standard Converter with TBC and Interface.

VIO1600 offers high quality image thanks to its automatic 3:2 and 2:2 pull down circuitry, auto adaptative motion compensation, auto centering, time base corrector, frame rate converter and follower and multilevel anti-flicker. The configurable adjustments recorded in a non volatile memory.

The **ULTRA VIO** includes all the features of the **VIO1600** and in addition is equipped with an 10 bits SDI/HDSDI input (input 2), an analog genlock input and a SDI/HDSDI output.

VIO1600 & ULTRA VIO are highly flexible devices, essential in complex installations. There are useful to solve all last minute issues. **VIO1600 & ULTRA VIO** are your all in one **V**ersatile **I**nput/**O**utput tools.

1-3. DEVICES & OPTIONS REFERENCES

REFERENCE	DESIGNATION
V301	VIO1600.
V301-ID1	VIO1600 (same V301 with SDI/HDSDI input).
VU301-IOD1	ULTRA VIO (same V301 with SDI/HDSDI input, analog genlock input and SDI/HDSDI output).
OPT-LAN	LAN communication port (optional).
OPT-RMK1	Rack Mount Kit (optional).

1-4. INSTALLATION

IMPORTANT: **Please read all the safety instructions (pages 2 to 4) before starting.**

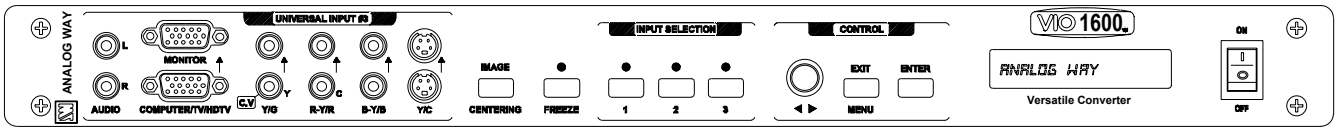
- *Table Top Mounting:* The device can be used directly on a table: the unit is equipped with 4 plastic feet.

- *Rack Mounting:* The device is compatible with a 19" enclosure (optional rack mount kit: OPT-RMK1). To install the device into a 19" rack: Attach the rack mount brackets to the side of the device with the 6 supplied screws. Then attach the device to the rack by using 4 screws in the front panel holes (screws are not included). Connect all of the cables to the device and attach them to the rack with some tie wraps.

IMPORTANT:

- **The openings in the rear and side panels are for cooling. Do not cover these openings.**
- **Be sure that no weight is added to the device in excess of 2 kg (4.4 lbs.).**
- **The maximum ambient operating temperature must not exceed 40°C (104°F).**
- **The rack and all mounted equipment in it must be reliably grounded to national and local electrical codes.**

1-5. FRONT PANEL DESCRIPTION



UNIVERSAL INPUT #3: Universal (computer and video) input. This input accepts the following sources:

AUDIO L+R:	Audio stereo source on 2xRCA connectors.
COMPUTER/TV/HDTV:	Computer (RGBHV, RGBS or RGsB) or video (SDTV or HDTV) source with loopthrough on a HD15 female connector.
Y / R-Y / B-Y:	Component (SDTV or HDTV) sources with loopthrough on 3xRCA female connectors.
R / G / B:	RGB video source with loopthrough on 3xRCA female connectors.
Y/C:	S.VIDEO (Y/C) source with loopthrough on 2xRCA female connector or on a 4-pin mini DIN connector.
C.V:	Composite Video (PAL, NTSC...) source with loopthrough on a RCA female connector.
RGBHV**:**	Computer (RGBHV, RGBS or RGsB) sources, Component (SDTV or HDTV) sources, S.VIDEO (Y/C) source, Composite Video source on BNC female connectors.

IMAGE CENTERING: Adjust automatically the image in the centering pattern.

FREEZE: Freeze the displayed output (the blinking LED indicates the FREEZE is active).

INPUT SELECTION:

- Selection of the 3 input sources (short push).
- A long push (1 second) on the selected input button allows to active the **BLACK** function. A black screen is displayed onto the output (the blinking LED indicates that this function is active). A short push on an INPUT SELECTION button allows to inactive this function.

CONTROL

◄ ► Allows to scroll thru the different menus (in Control mode).

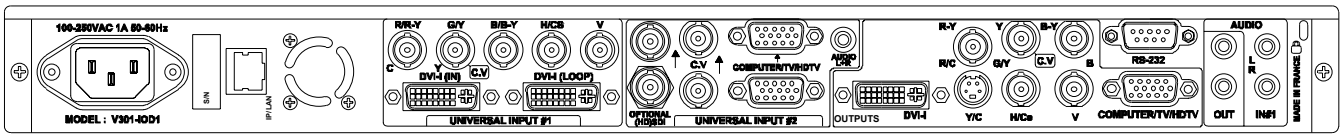
EXIT MENU: Switches between Status and Control mode.

ENTER: Validates a selected item.

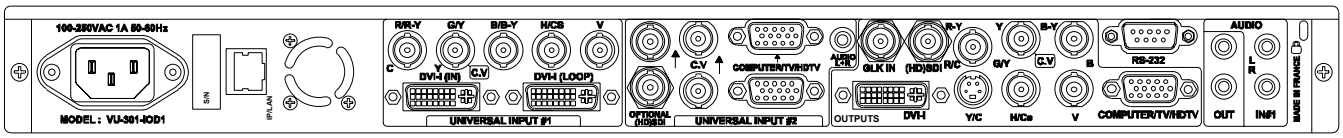
ON / OFF: AC power switch (O = OFF, I = ON).

1-6. REAR PANEL DESCRIPTION

• REAR PANEL OF THE VIO1600



• REAR PANEL OF THE ULTRA VIO



POWER: Standard IEC connector (100-250 VAC, 1A, 50-60Hz automatic).

IP/LAN: LAN communication port on a RJ45 connector (optional).

UNIVERSAL INPUT #1: Universal (computer and video) input. This input accepts the following sources:

DVI-I (IN):	Computer (analog or digital) source on a DVI-I female connector.
RGBHV:	Computer (RGBHV, RGBS or RGsB) source, Component (SDTV or HDTV) source, S.VIDEO (Y/C) source or Composite Video source on BNC female connectors.
DVI-I (LOOP):	Universal loopthrough.

UNIVERSAL INPUT #2: Universal (computer and video) input. This input accepts the following sources:

COMPUTER/TV/HDTV:	Computer or video source with loopthrough on a HD15 female connector.
C.V:	Composite Video source with loopthrough on a BNC female connector.
(HD)SDI:	SDI or HDSDI source with loopthrough on a BNC female connector (V301-ID1 &VU301-IOD1 versions only).
AUDIO L+R:	Audio stereo input on a jack 3.5 connector.

GLK IN (ULTRA VIO only)**:** Analog genlock input.

OUTPUTS: Universal (computer and video) outputs. Connect to this output one of the following display devices:

DVI-I:	Computer (digital) display device on a DVI-I female connector.
Y/C:	S.VIDEO (Y/C) display device on a 4-pin mini DIN female connector.
RGBHV:	Computer (RGBHV, RGBS or RGsB) display device, Component (SDTV or HDTV) display device, S.VIDEO (Y/C) display device or Composite Video display device on BNC female connectors.
COMPUTER/TV/HDTV:	Computer (RGBHV, RGBS or RGsB) display device, Component (SDTV or HDTV) display device, S.VIDEO (Y/C) display device or Composite Video display device on a HD15 female connector.
(HD)SDI:	SDI or HDSDI display device on a BNC female connector (ULTRA VIO only).

RS-232: RS-232 communication port on a DB9 female connector.

AUDIO:

OUT:	Audio stereo output on 2xRCA female connectors.
IN:	Audio stereo input #1 on 2xRCA female connectors.

CHAPTER 2 : STARTING

2-1. CONNECTIONS

① Turn OFF all of your equipment before connecting.

② Connect the AC power supply cord to the VIO1600/ULTRA VIO and to an AC power outlet.

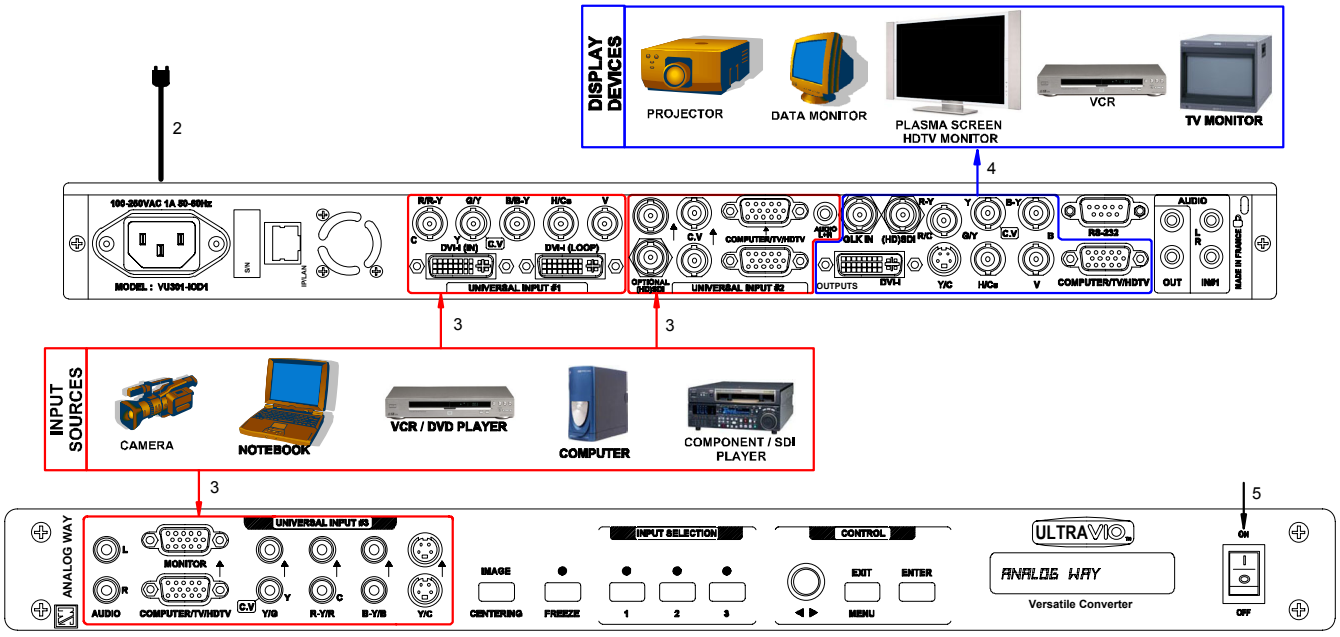
③ Connect your computer & video sources to the 3 universal inputs of the VIO1600/ULTRA VIO.
- If you need to connect a digital computer source, use the input #1 (DVI-I IN connector).
- If you need to connect a SDI or HDSDI video source, use the input #2 (V301-ID1 & VU301-IOD1 versions only).
- Connect your others sources to the unused inputs. See following sections to have a complete description.

IMPORTANT: Connect only one source by input.

④ Connect your Hi-Resolution display device (projector, plasma screen...) to the HD15 or BNC connectors, or connect your video display device (TV, VCR...) to the C.V, Y/C or RGB connectors or connect your DVI display device to the DVI-I connector or connect your digital display device to the (HD)SDI BNC connector.
IMPORTANT: Connect only one display device to the output.

⑤ Turn ON the VIO1600/ULTRA VIO (front panel switch). Then turn ON all your input sources and then your display device.

- **VIO1600/ULTRA VIO connection diagram:**



2-2. INPUT #1 DESCRIPTION

① CONNECTION:

You can connect to this input one of the following source:

- A composite video source on the **C.V** BNC connector or on the DVI-I (IN) connector.
- A S.VIDEO source on the **Y** and **C** BNC connectors or on the DVI-I (IN) connector.
- A Component video source on the **R-Y, Y** and **B-Y** BNC connectors or on the DVI-I (IN) connector.
- A HDTV source on the **R-Y, Y** and **B-Y** BNC connectors or on the DVI-I (IN) connector.

NOTE: The VIO1600 & ULTRA VIO accept the 720p and 1080i HDTV formats.

- A RGBS source on the **R, G, B** and **H/Cs** BNC connectors or on the DVI-I (IN) connector.
- An analog (RGBHV, RGsB, RGBS) computer source on the BNC connector or on the DVI-I (IN) connector.

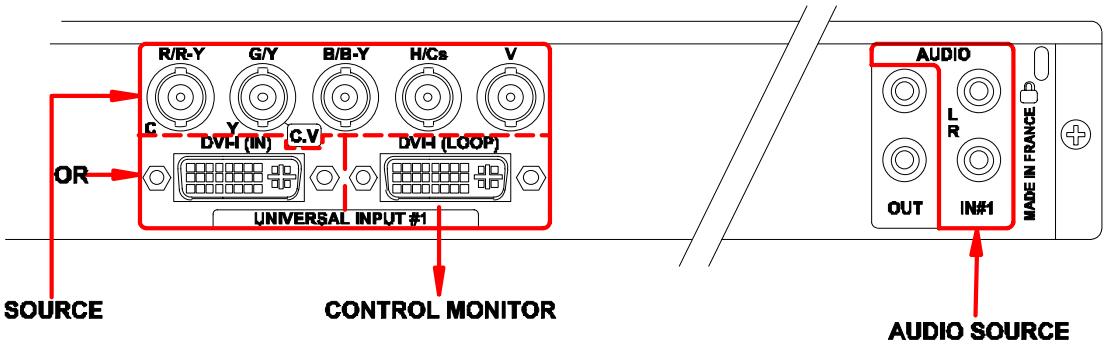
NOTE: You can use the DVI / HD15 adaptor provided with the device to connect analog sources on the DVI-I (IN) connector.

- A digital computer source on the DVI-I (IN) connector.

② LOOP-THROUGH:

You can connect a control monitor to the DVI-I (LOOP) connector. This connector can be used as well with analog sources connected to the BNC inputs using the DVI / HD15 adaptor provided with the VIO1600/ULTRA VIO.

③ INPUT #1 CONNECTION DIAGRAM:

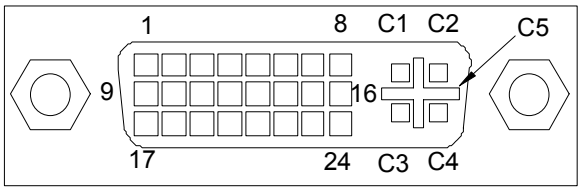


④ DVI-I PIN ASSIGNMENT:

The three DVI-I female connectors of the VIO1600/ULTRA VIO can be used with digital signals as well as analog signals. The table hereafter explain the pin assignment of these connectors.

Pin	Function	Pin	Function	Pin	Function
1	TMDS Data 2-	**9**	TMDS Data 1-	**17**	TMDS Data 0-
2	TMDS Data 2+	**10**	TMDS Data 1+	**18**	TMDS Data 0+
3	TMDS Data 2 Shield	**11**	TMDS Data 1 Shield	**19**	TMDS Data 0 Shield
4	Not used.	**12**	Not used.	**20**	Not used.
5	Not used.	**13**	Not used.	**21**	Not used.
6	DDC Clock	**14**	+ 5V (Power)	**22**	TMDS Clock Shield
7	DDC Data	**15**	Ground for (+5V)	**23**	TMDS Clock+
8	Analog Vertical Sync.	**16**	Hot plug detect.	**24**	TMDS Clock-

C1	Analog Red video (or Cr / Pr or C)
C2	Analog Green Video (or Y or composite video)
C3	Analog Bleu Video (or Cb / Pb)
C4	Analog Horizontal Sync (or composite sync)
C5	Analog Common Ground Return



DDC = Display Data Channel.
TMDS = Transition Minimized Differential Signal.

⑤ AUDIO SOURCE:

You can also connect an AUDIO stereo source on 2xRCA connectors.

2-3. INPUT #2 DESCRIPTION

① CONNECTION:

You can connect to this input one of the following source:

- A composite video source on the **C.V** BNC connector or on the **COMPUTER/TV/HDTV** HD15 (bottom) connector.
- A S.VIDEO source on the HD15 (bottom) connector.
- A Component video source on the **COMPUTER/TV/HDTV** HD15 (bottom) connectors.
- A HDTV source on the **COMPUTER/TV/HDTV** HD15 connectors.

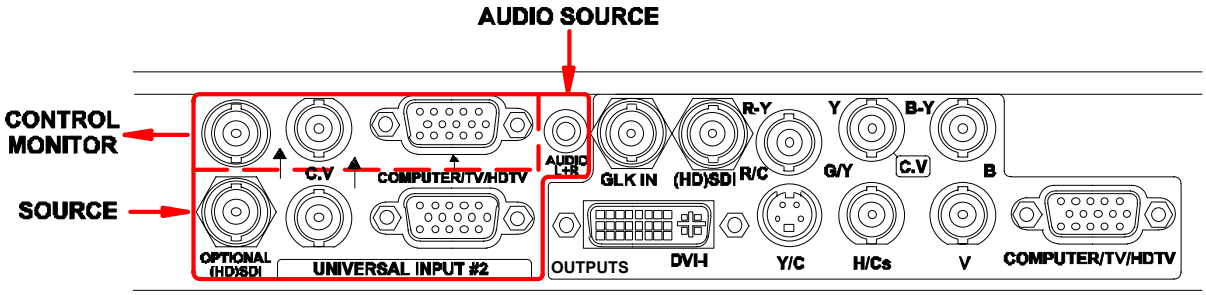
NOTE: The VIO1600 & ULTRA VIO accept the 720p and 1080i HDTV formats.

- A RGBS source on the **COMPUTER/TV/HDTV** HD15 (bottom) connector.
- An analog computer source (RGBHV, RGsB, RGBS) on the **COMPUTER/TV/HDTV** HD15 connector.
- A SDI or HDSDI source on the **(HD)SDI** BNC connector (V301-ID1 version only).

② LOOP-THROUGH:

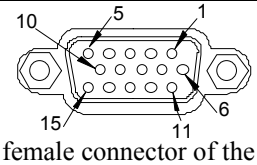
You can connect a control monitor to the loop-through connectors (top BNC & HD15 connectors).

③ INPUT #2 CONNECTION DIAGRAM:



④ HD15 PIN ASSIGNMENT:

SIGNAL	COMPUTER (analog)	VIDEO RGB/S	YUV & HDTV (analog)	S.VIDEO (Y/C)	COMPOSITE VIDEO
PIN 1	RED.	RED.	Cr / Pr.	C (chrominance).	
PIN 2	GREEN.	GREEN.	Y.	Y (luminance).	VIDEO (NTSC, PAL...)
PIN 3	BLUE.	BLUE.	Cb / Pb.		
PIN 6	RED return.	RED return.	Cr / Pr return.	C return.	
PIN 7	GREEN return.	GREEN return.	Y return.	Y return.	return.
PIN 8	BLUE return.	BLUE return.	Cb / Pb return.		
PIN 10	GND.	GND.			
PIN 13	H sync or C sync (S).	C sync (S).			
PIN 14	V sync.				



HD15 female connector of the device.

⑤ AUDIO SOURCE:

You can also connect an AUDIO stereo source on jack 3.5 connector.

2-4. INPUT #3 DESCRIPTION

① CONNECTION:

You can connect to this input one of the following source:

- A Composite Video source on the **C.V** RCA connector or on the **COMPUTER/TV/HDTV** HD15 (bottom) connector.
- A S.VIDEO source on the **Y/C** 4-pin mini DIN (bottom) connector or on the **Y & C** RCA (bottom) connectors or on the **COMPUTER/TV/HDTV** HD15 (bottom) connector.
- A Component video source on the **Y, R-Y & B-Y** RCA (bottom) connectors or on the **COMPUTER/TV/HDTV** HD15 (bottom) connector.
- A HDTV source on the **Y, R-Y & B-Y** RCA (bottom) connectors or on the **COMPUTER/TV/HDTV** HD15 (bottom) connector.

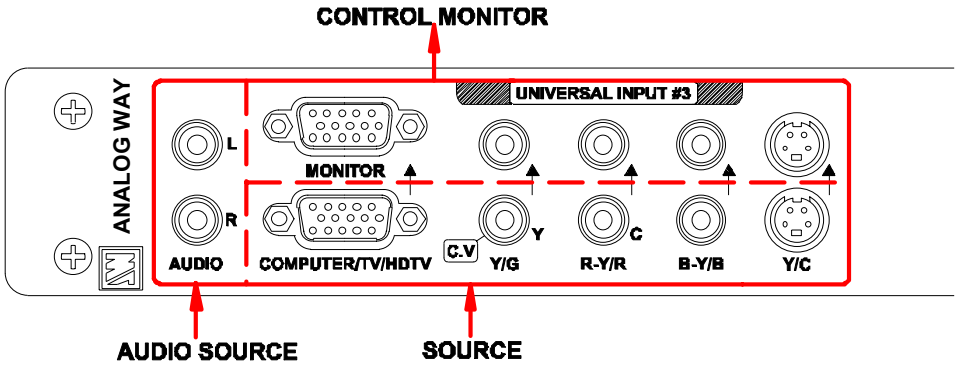
NOTE: The VIO1600 & ULTRA VIO accept the 720p and 1080i HDTV formats.

- A RGBS source on the **COMPUTER/TV/HDTV** HD15 (bottom) connector.
- An analog computer source (RGBHV, RGsB or RGBS) on the **COMPUTER/TV/HDTV** HD15 (bottom) connector.

② LOOP-THROUGH:

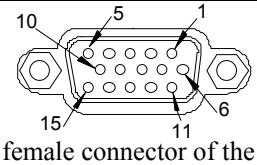
You can connect a control monitor to the loop-through connectors (top BNC, 4-pin mini DIN & HD15 connectors).

③ INPUT #3 CONNECTION DIAGRAM:



④ HD15 PIN ASSIGNMENT:

SIGNAL	COMPUTER (analog)	RGB/S VIDEO	YUV & HDTV (analog)	S.VIDEO (Y/C)	COMPOSITE VIDEO
PIN 1	RED.	RED.	Cr / Pr.	C (chrominance).	
PIN 2	GREEN.	GREEN.	Y.	Y (luminance).	VIDEO (NTSC, PAL...)
PIN 3	BLUE.	BLUE.	Cb / Pb.		
PIN 6	RED return.	RED return.	Cr / Pr return.	C return.	
PIN 7	GREEN return.	GREEN return.	Y return.	Y return.	return.
PIN 8	BLUE return.	BLUE return.	Cb / Pb return.		
PIN 10	GND.	GND.			
PIN 13	H sync or C sync (S).	C sync (S).			
PIN 14	V sync.				



HD15 female connector of the device.

⑤ AUDIO SOURCE:

You can also connect an AUDIO stereo source on 2xRCA connectors.

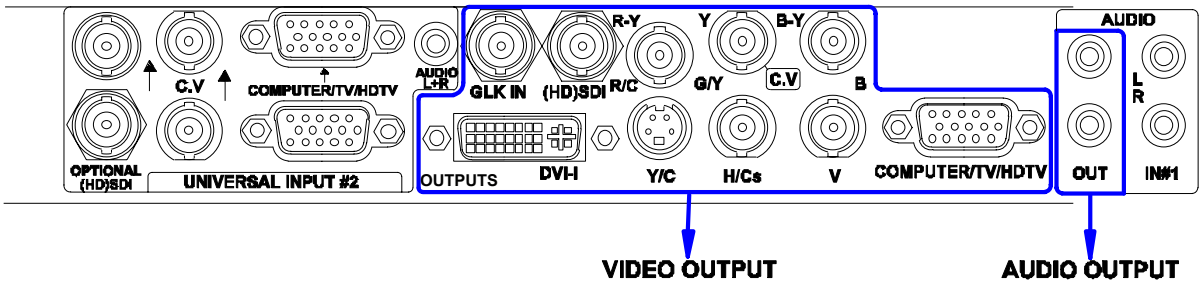
2-5. OUTPUT DESCRIPTION

① CONNECTION:

You can connect to this output one of the following display device:

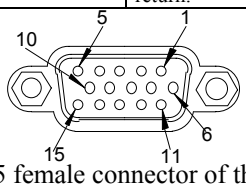
- A composite video device on the **C.V** BNC connector or on the **COMPUTER/TV/HDTV** HD15 connector.
- A S.VIDEO device on the **Y/C** (4-pin mini DIN) connector or on the **Y & C** BNC connector or on the HD15 connector.
- A Component video device on the **R-Y, Y & B-Y** BNC connectors or on the **COMPUTER/TV/HDTV** HD15 connector.
- A HDTV device on the **R-Y, Y & B-Y** BNC connectors or on the **COMPUTER/TV/HDTV** HD15 connectors.
- A RGBS device on the **R, G, B, & H/Cs** BNC connectors or on the **COMPUTER/TV/HDTV** HD15 connector.
- An analog data device on the **R, G, B, H & V** BNC connectors or on the **COMPUTER/TV/HDTV** HD15 connector.
- A digital data device on the DVI connector.

② OUTPUT CONNECTION DIAGRAM:



③ HD15 PIN ASSIGNMENT:

SIGNAL	COMPUTER (analog)	RGB/S VIDEO	YUV & HDTV (analog)	S.VIDEO (Y/C)	COMPOSITE VIDEO
PIN 1	RED.	RED.	Cr / Pr.	C (chrominance).	
PIN 2	GREEN.	GREEN.	Y.	Y (luminance).	VIDEO (NTSC, PAL...)
PIN 3	BLUE.	BLUE.	Cb / Pb.		
PIN 6	RED return.	RED return.	Cr / Pr return.	C return.	
PIN 7	GREEN return.	GREEN return.	Y return.	Y return.	return.
PIN 8	BLUE return.	BLUE return.	Cb / Pb return.		
PIN 10	GND.	GND.			
PIN 13	H sync or C sync (S).	C sync (S).			
PIN 14	V sync.				

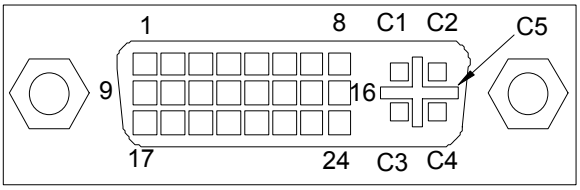


HD15 female connector of the device.

④ DVI-I PIN ASSIGNMENT:

Pin	Function	Pin	Function	Pin	Function
1	TMDS Data 2-	**9**	TMDS Data 1-	**17**	TMDS Data 0-
2	TMDS Data 2+	**10**	TMDS Data 1+	**18**	TMDS Data 0+
3	TMDS Data 2 Shield	**11**	TMDS Data 1 Shield	**19**	TMDS Data 0 Shield
4	Not used.	**12**	Not used.	**20**	Not used.
5	Not used.	**13**	Not used.	**21**	Not used.
6	DDC Clock	**14**	+ 5V (Power)	**22**	TMDS Clock Shield
7	DDC Data	**15**	Ground for (+5V)	**23**	TMDS Clock+
8	Analog Vertical Sync.	**16**	Hot plug detect.	**24**	TMDS Clock-

C1	Analog Red video (or Cr / Pr or C)
C2	Analog Green Video (or Y or composite video)
C3	Analog Bleu Video (or Cb / Pb)
C4	Analog Horizontal Sync (or composite sync)
C5	Analog Common Ground Return



DDC = Display Data Channel.
TMDS = Transition Minimized Differential Signal.

⑤ AUDIO:

You can also connect an AUDIO stereo device on the 2xRCA connectors.

CHAPTER 3 : OPERATING MODE

3-1. SETTINGS

① We recommend resetting the device to all of its **default values**, with the front panel display menu (**CONTROL > default value > yes**) before proceeding.

② Select the **input type** connected to the **INPUTS** with the front panel display menu (**INPUT > input type**).

③ Select the **output type & format** which corresponds to your display device with the front panel display menu (**OUTPUT > output type**).

④ Select one of the **output rate** available with the front panel display (**OUTPUT > output rate**).

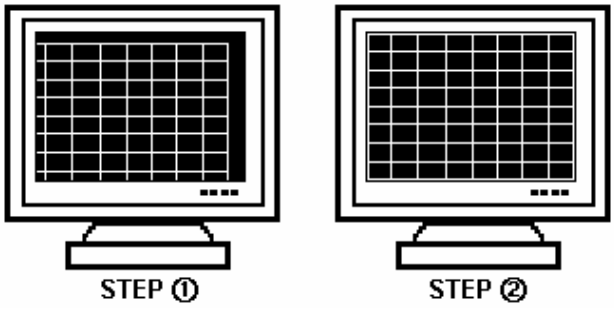
⑤ For computer source, select the **output sync** type with the front panel display (**OUTPUT > output sync**).

3-2. DISPLAY DEVICE ADJUSTMENTS

① Display the **grid pattern** with the front panel display menu (**OUTPUT > test pattern > grid**).

② Display a black output.

③ Adjust directly the display device itself, using its position and size controls, to fill the grid pattern in full screen.



3-3. IMAGE ADJUSTMENTS

For each input source connected to the device, make the following adjustments:

① Select the source you want to adjust (with the front panel "INPUT SELECTION" buttons).

② Select the aspect ratio of your input source with the screen menu (**IMAGE > aspect ratio in**).

③ Display the centering pattern (**OUTPUT > test pattern > centering**) and use the **Centering** function (**IMAGE > centering**) to automatically position the image in the **Centering pattern**.

IMPORTANT: For best results, display a full size bright image (no black border) to perform a centering. If necessary, correct the adjustment with the position & size functions (**IMAGE > pos settings**).

NOTE: The **Image Centering** function is only available for computer sources.
NOTE: In case of same Input/Output resolution, the centering also achieves automatic pixel clock adjustments. It may be useful, to improve manually the pixel **clock** and **phase** using the screen menu (**IMAGE > optimize > clock or phase**).

④ If needed, make the others adjustments, available in the screen **IMAGE** menu (color, brightness…).
NOTE: To set the image adjustments to the factory settings, use the **Preset** function (**IMAGE > preset > yes**).
NOTE: The adjustments are automatically stored in NON-volatile memories. The VIO1600 & ULTRA VIO are provided with 40 NON-volatile image memories. Each of these memories contains the input channel number, the input and output format parameters and all of the image adjustments (position, size, brightness...). When the 40 memories are used, each new memorization erases the oldest record.

3-4. AUDIO ADJUSTMENTS

① Adjust the master volume (**AUDIO > master volume**).

② For each audio input, adjust the level (**AUDIO > audio level**) and the balance (**AUDIO > audio balance**).

CHAPTER 4 : FRONT PANEL DISPLAY MENUS DESCRIPTION

4-1. INTRODUCTION

The front panel display menu presents 2 modes: the STATUS MODE and the CONTROL MODE.

- The STATUS MODE indicates the input and output status of the device.
- The CONTROL MODE allows selecting and adjusting the parameters of the device.

4-2. CONTROL BUTTONS

The front panel display is controlled by 2 buttons and 1 knob:

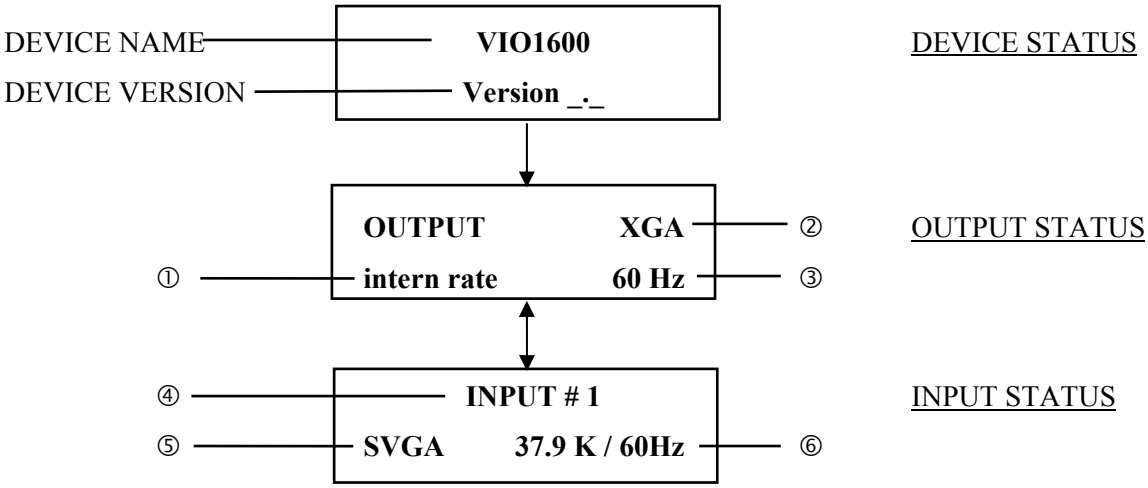
◀ ▶ knob:
- In the CONTROL MODE, turn this knob to scroll thru the different menus.

EXIT / **MENU** button:
- In the STATUS MODE, press this button to enter in the CONTROL MODE.
- In the CONTROL MODE, press this button to:
  - return to the previous menu without safeguarding the selection.
  - return to the STATUS MODE (press several times).

ENTER button:
- From the STATUS MODE, press this button to enter in the CONTROL MODE.
- From the CONTROL MODE, press this button to confirm a selected item.

4-3. STATUS MODE

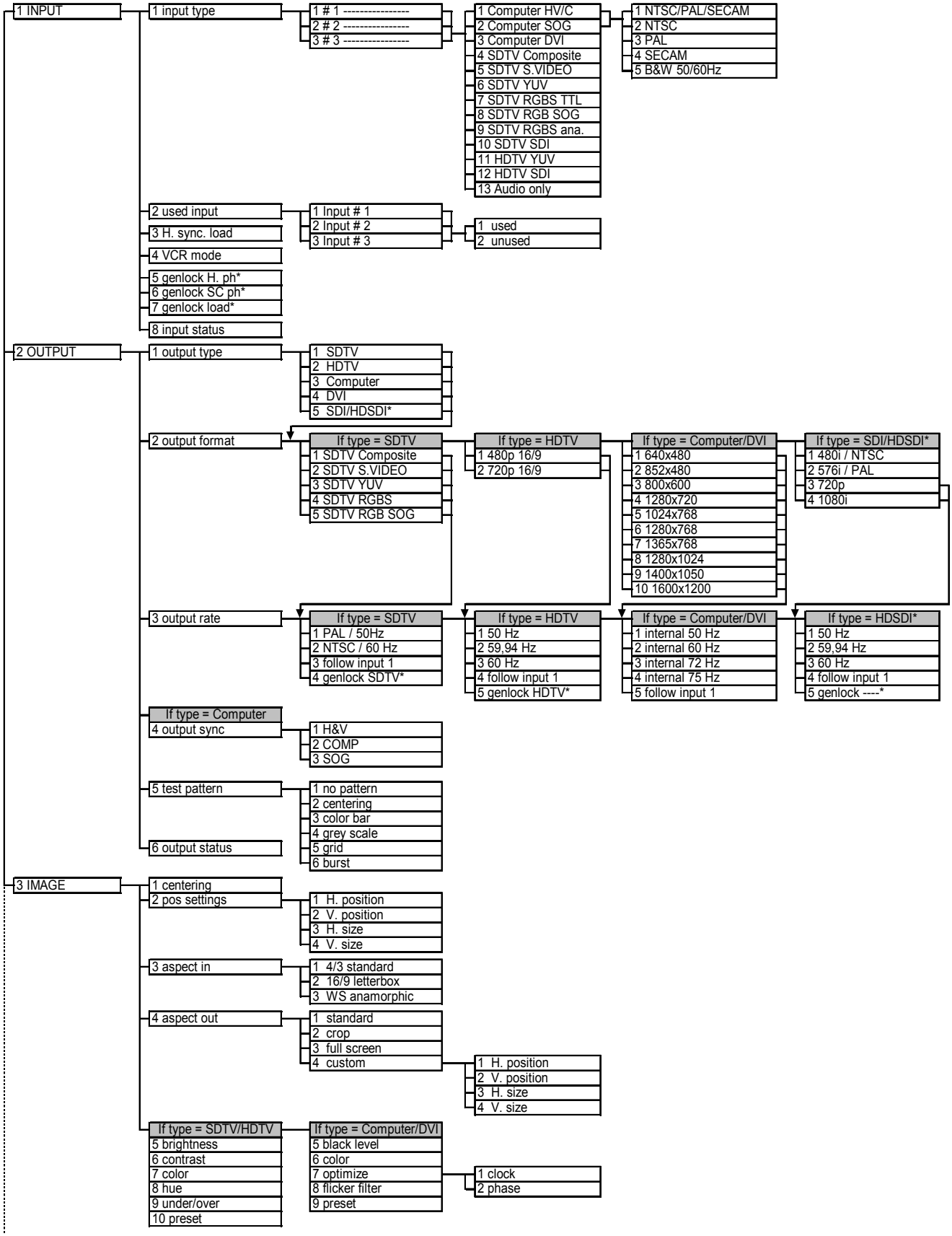
When switching ON, the front panel display shows the product's name and firmware versions as follows:



① OUTPUT RATE MODE.
② OUTPUT FORMAT.
③ OUTPUT FRAME RATE.
④ SELECTED INPUT.
⑤ INPUT FORMAT OR INPUT STANDARD.
⑥ INPUT LINE / FRAME FREQUENCY.

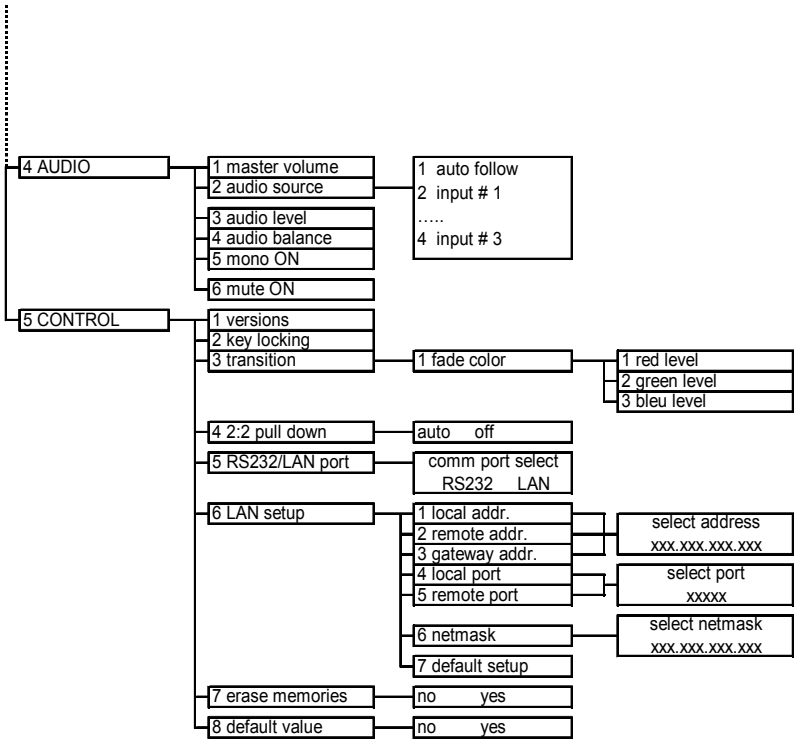
4-4. CONTROL MODE

The menus of the CONTROL MODE are configured as follow:



* available with the ULTRA VIO only.

4-4. CONTROL MODE (continued)



4-5. FUNCTIONS DESCRIPTION

1 ▸ [INPUT] + ENTER.

1-1 [input type] + ENTER.
① Select an input with ◂ ▸ + **ENTER.**
② Select the input signal type with ◂ ▸ + **ENTER** between:
- **[Computer HV/C]**
- **[Computer SOG]**
- **[Computer DVI]**
- **[SDTV Composite]**
- **[SDTV S.VIDEO]**
- **[SDTV YUV]**
- **[SDTV RGBS TTL]**
- **[SDTV RGB SOG]**
- **[SDTV RGBS ana.]**
- **[SDTV SDI]**
- **[HDTV YUV]**
- **[HDTV SDI]**
- **[Audio only]:** select this function if you only want to connect an audio source (no video signal needed).

③ Then for **[SDTV Composite]** and **[SDTV S.VIDEO]**, select the video standard with ◂ ▸ + **ENTER** between:
- **[NTSC / PAL / SECAM]**: automatic NTSC, PAL and SECAM standard detection.
- **[NTSC]**: NTSC standard detection only.
- **[PAL]**: PAL standard detection only.
- **[SECAM]**: SECAM standard detection only.
- **[B & W 50/60 Hz]**: Black and White detection.

1-2 [used input] + ENTER.
Select an input and then select an item ◂ ▸ + **ENTER** between:
- **[used]**: A signal is connected to the input.
- **[unused]**: No signal is connected to the input. The input is unused.

1-3 [H sync load] + ENTER.
Select for each input the load of the H Sync. with ◂ ▸ + **ENTER.**

1-4 [VCR mode] + ENTER.
This function allows improving the image contour of low quality VHS tapes. Select **[on]** with **ENTER.**

1-5 [genlock H. ph] + ENTER. (ULTRA VIO only)
This function allows adjusting the genlock horizontal phase. Adjust with ◂ ▸ + **ENTER.**

1-6 [genlock Sc. ph] + ENTER. (ULTRA VIO only)
This function allows adjusting the genlock Subcarrier phase. Adjust with ◂ ▸ + **ENTER.**

1-7 [genlock load] + ENTER. (ULTRA VIO only)
Select the load of the genlock input signal with ◂ ▸ + **ENTER.**

1-8 [input status] + ENTER.
Indicates the status of the selected input.

4-5. FUNCTIONS DESCRIPTION (continued)

2 ▸ [OUTPUT] + ENTER.

2-1 [output type] + ENTER.
Select one of the following output type with ◂ ▸ + **ENTER.**

2-1-1 [SDTV]: Standard TV/VIDEO output type.
2-1-2 [HDTV]: HDTV output type.
2-1-3 [Computer]: Analog computer output type.
2-1-4 [DVI]: Digital computer output type (DVI).
2-1-5 [SDI/HDSDI]: SDI & HDSDI output type. (ULTRA VIO only)

2-2 [output format] + ENTER.

- **If output type = SDTV:** Select one of the following SDTV format with ◂ ▸ + **ENTER.**
  - **[SDTV Composite]**
  - **[SDTV S.VIDEO]**
  - **[SDTV YUV]**
  - **[SDTV RGBS TTL]**
  - **[SDTV RGB SOG]**
- **If output type = HDTV:** Select one of the following HDTV format with ◂ ▸ + **ENTER.**
  - **[HDTV 480p]**: 853 x 480 at 60 Hz.
  - **[HDTV 720p]**: 1280 x 720 at 60 Hz.
- **If output type = SDI/HDSDI:** Select one of the following format with ◂ ▸ + **ENTER.**
  - **[480i / NTSC]** : SDI format.
  - **[576i / PAL]** : SDI format.
  - **[720p]**: HDSDI format.
  - **[1080i]**: HDSDI format.
- **If output type = Computer or DVI:** Select one of the following Computer format with ◂ ▸ + **ENTER.**
  - **[640x480]**
  - **[852x480]**
  - **[800x600]**
  - **[1280x720]**
  - **[1024x768]**
  - **[1280x768]**
  - **[1365x768]**
  - **[1280x1024]**
  - **[1400x1050]**
  - **[1600x1200]**

2-3 [output rate] + ENTER.
Select one of the following output rate with ◂ ▸ + **ENTER.**

- **[PAL / 50Hz]:** PAL output standard or 50 Hz output frame rate. Available only if **output type** = **SDTV**.
- **[NTSC / 60Hz]:** NTSC output standard or 60 Hz output frame rate. Available only if **output type** = **SDTV**.
- **[50Hz]:** 50 Hz output frame rate. Available only if **output type** = **HDTV** or **HDSDI**.
- **[59.94Hz]:** 59.94 Hz output frame rate. Available only if **output type** = **HDTV** or **HDSDI**.
- **[60Hz]:** 60 Hz output frame rate. Available only if **output type** = **HDTV** or **HDSDI**.
- **[internal 50Hz]:** 50 Hz output frame rate. Available only if **output type** = **computer** or **DVI**.
- **[internal 60Hz]:** 60 Hz output frame rate. Available only if **output type** = **computer** or **DVI**.
- **[internal 72Hz]:** 72 Hz output frame rate. Available only if **output type** = **computer** or **DVI**.
- **[internal 75Hz]:** 75 Hz output frame rate. Available only if **output type** = **computer** or **DVI**.
- **[follow input 1]:** The output rate is identical to the input frame rate. The output rate is 50 Hz for PAL & SECAM video inputs, or 59.94 Hz for NTSC video inputs.
- **[genlock SDTV]:** The output is genlocked on the SDTV signal connected to the genlock input .
- **[genlock HDTV]:** The output is genlocked on the HDTV signal connected to the genlock input .

2-4 [output sync] + ENTER.
Select the Output Sync. type with ◂ ▸ + **ENTER.** Available only if **output type** = **Computer**.

- **[H&V]:** H & V Separate Sync.
- **[COMP]**: Composite Sync.
- **[SOG]:** Sync On green.

2-5 [test pattern] + ENTER.
Select an item with ◂ ▸ + **ENTER**.

- **[no pattern]**: No test pattern is displayed.
- **[centering]**: Displays onto the output a centering pattern (for position and size adjustments).
- **[color bar]**: Displays onto the output a color bar pattern.
- **[grey scale]**: Displays onto the output a grey scale pattern.
- **[grid]**: Displays onto the output a grid pattern.
- **[burst]**: Displays onto the output a burst pattern.

4-5. FUNCTIONS DESCRIPTION (continued)

3 ▸ [IMAGE] + ENTER.
NOTE: The image menu contents will be different in case of input & output type selected.

3-1 [centering] + ENTER.
Adjust automatically the image in the centering pattern.

3-2 [pos. settings] + ENTER.
Select one of the following function with ◂ ▸ + **ENTER.**

3-2-1 [H position] + ENTER.
Adjust the Horizontal position with ◂ ▸ + **ENTER.**

3-2-2 [V position] + ENTER.
Adjust the Vertical position with ◂ ▸ + **ENTER.**

3-2-3 [H size] + ENTER.
Adjust the Horizontal size with ◂ ▸ + **ENTER.**

3-2-4 [V size] + ENTER.
Adjust the Vertical size with ◂ ▸ + **ENTER.**

3-3 [aspect in] + ENTER.
Select the Aspect Ratio of your input source with ◂ ▸ + **ENTER.**
- **[4/3 standard]**: 4/3 input format.
- **[16/9 letterbox]:** Letterbox input format.
- **[WS anamorphic]:** Widescreen Anamorphic input format (video) or 16/9 input format (computer).

3-4 [aspect out] + ENTER.
Select one of the following output aspect ratio with ◂ ▸ + **ENTER.**
- **[standard]**: The entire image and the aspect ratio are preserved.
- **[crop]**: The image is zoomed without deformation to fill the screen, but some borders of the image will be cropped. The aspect ratio is preserved.
- **[full screen]**: The image is stretched to fill the screen. The aspect ratio is not preserved.
- **[custom]**: The image can be zoomed, cropped and stretched at your convenience.

• If the selected input is a VIDEO signal the IMAGE MENU displays the following items:

3-5 [brightness] + ENTER.
Adjust the brightness with ◂ ▸ + **ENTER.**

3-6 [contrast] + ENTER.
Adjust the contrast with ◂ ▸ + **ENTER.**

3-7 [color] + ENTER.
Adjust the color with ◂ ▸ + **ENTER.**

3-8 [hue] + ENTER.
Adjust the tint of the picture (NTSC only) with ◂ ▸ + **ENTER.**

3-9 [u / over scan] + ENTER.
Select Underscan or Overscan with ◂ ▸ + **ENTER.**
- **[underscan]**: Underscan mode. The entire image is visible on the screen. Computer mode is underscan.
- **[overscan]**: Overscan mode. The image is displayed about 8 % bigger than in underscan mode, to avoid seeing the corners and the borders. Standard TV display mode is overscan.

3-10 [preset] + ENTER.
This function allows setting all the image parameters to the factory settings. Select **[YES]** and validate with **ENTER**.

4-5. FUNCTIONS DESCRIPTION (continued)

• If the selected input is a COMPUTER signal the IMAGE MENU displays the following items:

3-5 [black level] + ENTER.
Adjust the black level with ◄ ► + **ENTER.**

3-6 [color] + ENTER.
Select a color (Red, Green, or Blue) with ◄ ► + **ENTER** and adjust the level with ◄ ► + **ENTER.**

3-7 [optimize] + ENTER.
Select an item with ◄ ► + **ENTER.**
- **[clock]**: Manual adjustment of the pixel clock.
- **[phase]:** Manual adjustment of the pixel phase.

3-8 [flicker filter] + ENTER. (If the selected output type is SDTV or HDTV)
Adjust the level of anti-flicker ◄ ► + **ENTER.**

3-9 [preset] + ENTER.
This function allows setting all the image parameters to the factory settings. Select **[YES]** and validate with **ENTER.**

4 ► [AUDIO] + ENTER.

4-1 [master volume] + ENTER.
Adjust the audio output level with ◄ ► + **ENTER.**

4-2 [audio source] + ENTER.
Select an item with ◄ ► + **ENTER**:
- **[auto follow]**: The audio follows the video image.
- **[input --]**: The selected audio input (is permanently diffused).

4-3 [audio level] + ENTER.
This function allows adjusting the level of the selected (diffused) audio source. Adjust the level with ◄ ► + **ENTER.**

4-4 [audio balance] + ENTER.
This function allows adjusting the balance of the selected (diffused) audio source. Adjust the level with ◄ ► + **ENTER.**

4-5 [mono ON] + ENTER.
Select ON to have a mono audio output.

4-6 [mute ON] + ENTER.
Switch ON or OFF the audio output**.** Validate with **ENTER.**

4-5. FUNCTIONS DESCRIPTION (continued)

5 ▸ [CONTROL] + ENTER.

5-1 [versions] + ENTER.
Version _._: update version. I : Identification number. K, S, F, O, V: Internal firmware versions.

5-2 [key locking] + ENTER.
Select an item with ◂ ▸ and change the mode with **ENTER**.
- **[menus]**: Locks/unlocks the **CONTROL** switches.
- **[input]**: Locks/unlocks the **INPUT SELECTION** and **FREEZE** switches.
- **[all]**: Locks/unlocks all the front panel switches.

NOTE: To unlock presses simultaneously on **ENTER** and **EXIT**.
- **[autolock]:** Allows to select an input only if a signal is connected.

5-3 [transition] + ENTER.

5-3-1 [fade color] + ENTER.
This function allows selecting the color of the fade during the transition. Select a color (red, green or blue) with ◂ ▸ + **ENTER** and adjust the level with ◂ ▸ + **ENTER**. During the adjustment the color is displayed onto the output. To obtain the black color, set the 3 levels to the minimum. To obtain the white color, set the 3 levels to maximum. To obtain the grey color, set the 3 levels in the middle.

5-4 [2:2 pull down] + ENTER.
Select an item and validate with **ENTER.**
- **[auto]:** Automatic recognition and correction of the 2:2 pull down.
- **[off]:** Disable the 2:2 pull down correction.

5-5 [RS232/LAN port] + ENTER.
Select the needed communication port with ◂ ▸ + **ENTER.**
- **[RS232]**: Enables the RS-232 communication port. (Default setting).
- **[LAN]**: Enables the LAN communication port.
  IMPORTANT: To avoid addresses conflict, configure the LAN communication port (with the **LAN setup** menu) before activates it.

NOTE: The RS-232 & the LAN communication ports can not be used simultaneously.

5-6 [LAN setup] + ENTER.
Allows configuring the LAN communication port. Select items with ◂ ▸ + **ENTER.**

NOTE: If the LAN option is not installed in the device the front panel display indicates: "LAN OPTION NOT INSTALLED".

- **[local addr.]**: Every device connected to an IP network must have a unique IP address. This address is used to reference the specific unit. IP addresses are specified as **x.x.x.x** where each **x** is a number from 1 to 254. Assign the device to a unique IP address with ◂ ▸ + **ENTER**. (Default value: 192.168.0.2).
- **[remote addr.]**: This is the destination IP address used with an outgoing connection. Select the destination IP address with ◂ ▸ + **ENTER**. (Default value: 192.168.0.1).
- **[gateway addr.]**: The gateway address, or router, allows communication to other LAN segments. The gateway address should be the IP address of the router connected to the same LAN segment as the unit. Select the gateway address with ◂ ▸ + **ENTER**. (Default value: 192.168.0.1).
- **[local port]**: Every TCP connection and every UDP datagram is defined by a destination IP address and a port number. Select a local port number with ◂ ▸ + **ENTER** between 10000 and 10999. (Default value: 10500).
- **[remote port]**: You must set the remote TCP port number for the unit to make outgoing connections. This parameter defines the port number on the target host to which a connection is attempted. Select a remote port number with ◂ ▸ + **ENTER** between 00000 and 655000. (Default value: 10500).
- **[netmask]**: A netmask defines the number of bits taken from the IP address that are assigned for the host section. The device prompts for the number of host bits to be entered, then calculates the netmask, which displays in standard decimal-dot notation when the saved parameters are displayed. Select the netmask with ◂ ▸ + **ENTER**. (Default value: 255.255.255.0).
- **[default setup]**: Set all the LAN settings to the default value. Select **[YES]** and validate with **ENTER.**

MAC ADDRESS: The MAC address, also referred to hardware address, is a unique number assigned to each device. The MAC address is available on the bottom device label.

4-5. FUNCTIONS DESCRIPTION (continued)

5-7 [erase memories] + ENTER.

This function allows erasing all the NON-volatile image memories. Select **[YES]** and validate with **ENTER.**

5-8 [default value] + ENTER.

This function allows setting the following functions to the factory settings. Select **[YES]** and validate with **ENTER.**

FUNCTION	POSITION
1-1 [input type]	Computer HV/C.
1-2 [used input]	All used.
1-3 [H sync load]	All Hi-Z.
1-4 [VCR mode]	All off
2-2 [output format]	XGA 60Hz 4/3.
2-3 [output rate]	60
2-4 [output sync]	H&V.
2-5 [test pattern]	no
3-2 [pos. settings]	0
3-3 [aspect in]	4/3 standard
3-4 [aspect out]	standard
3-5 [brightness]	0
3-5 [black level]	0
3-6 [contrast]	0
3-6 [color]	0
3-7 [color]	0
3-8 [hue]	0
3-8 [flicker filter]	0
3-9 [under/overscan]	overscan
4-1 [master volume]	191
4-2 [audio source]	auto follow
4-3 [audio level]	48
4-4 [audio balance]	0
4-5 [mono]	OFF
4-6 [mute]	OFF
5-2 [key locking]	all unlock
5-3 [fade color]	R, G, B = - 64
5-4 [2:2 pull down]	auto
5-5 [RS232/LAN port]	RS232
FREEZE	inactive.

CHAPTER 5 : UPDATING THE DEVICE

The VIO1600/ULTRA VIO can be updated thanks a computer (PC) via its RS-232 communication port or via its LAN communication port.

5-1. CONNECTIONS

① Connect the device to an AC power outlet.

② Switch ON the device (FRONT PANEL SWITCH = I).

③ Connect the device to the computer used for the update via the desired communication port.
- For the RS232 communication port: Connect the RS232 connector of the device to the serial port of your computer with a DB9 M/F straight cable.
- For the LAN communication port: Connect the RJ45 connector of the device to your network according to your installation. Then with the front panel display menu configure the LAN communication port (**CONTROL > LAN setup**) and activate the LAN communication port (**CONTROL > RS232/LAN port > LAN**).

5-2. UPDATE INSTRUCTIONS

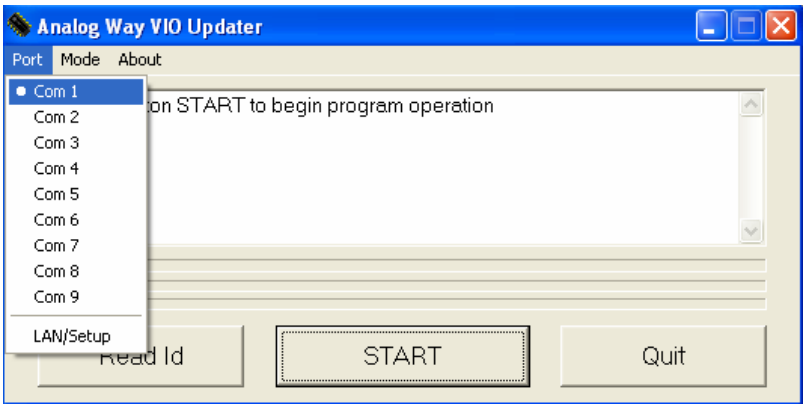
① Switch ON the device.

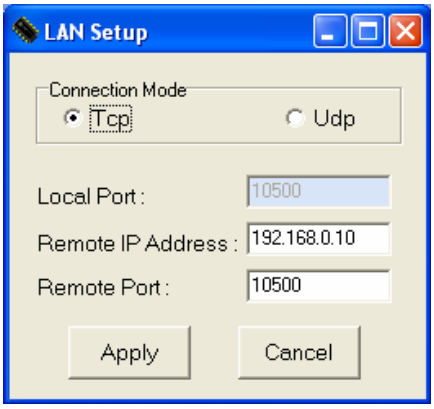
② Open the file: VIO-Update.exe (in **Start > Program > ANALOGWAY > VIO**).

③ In the **Port** menu select the **Com** port connected to the device to update the device via its RS232 communication port or click on **LAN setup** and select the communication parameters to update the device via the LAN communication port.

④ Click on **START** on the software. The update will start.

⑤ When the software displays: **Program operation completed**, click on the **Quit** button to close the update software. Your VIO1600/ULTRA VIO is now ready to work.





NOTE: The updater files are available on our web site: ***http://www.analogway.com***

CHAPTER 6 : REMOTE CONTROL SOFTWARE

Your device is shipped with a Windows compatible **Remote Control Software**. This software allows you to control and make all adjustments by a simple mouse click.
NOTE: Preferably use Windows NT, 2000 or XP for LAN operation.

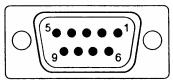
6-1. CONNECTIONS

① **CONNECTING TO THE RS-232 PORT:**
- Connect the serial port of your control device to the **RS-232** port (DB9 Female connector) of the device with a **straight** cable (DB9 Female / DB9 Male).

- Speed transmission: 9600 bauds, 8 data bits, 1 stop bit, no parity bit, no flow control.

- Pin-out:

PIN #	FUNCTIONS
2	TRANSMIT DATA (Tx)
3	RECEIVE DATA (Rx)
5	GROUND (Gnd)



DB9 female (Rear panel of the device)

② **CONNECTING TO THE LAN PORT (optional):**
- Connect the LAN port (RJ45 connector) of the device to your network according to your installation.

6-2. SOFTWARE INSTALLATION:

① Turn your computer ON and wait for Windows to completely start.
② Insert the CD-ROM into your drive: the ANALOG WAY home window will open automatically.
③ Select the language of the CD-ROM menus, then click on "Install a Remote Control Software" and select the name of your device.

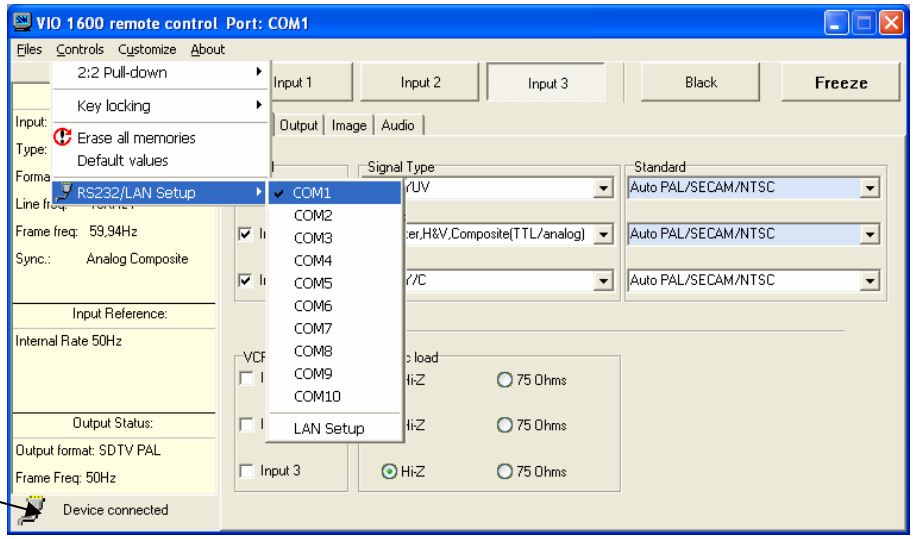
IMPORTANT: If the Autorun is not enabled: From the Windows desktop, open My Computer and select the CD-ROM drive. Select the Autorun folder, then select the autorun.exe file.

④ Follow the Windows installation instructions.

6-3. COMMUNICATION SETUP

① Connect the RS-232 or RJ45 cable between the VIO1600/ULTRA VIO and the control device as indicated in the section 6-1.
② Then only power ON all of the devices.
③ Click on the program files VIO in **Start>program>ANALOGWAY>VIO** to run the software.
④ Click on **Controls** menu and select **RS232/LAN setup**, then:

• **CASE OF RS-232 PORT:**
- With the front panel display menu of the device, verify that the RS-232 port is activate (**CONTROL > RS232/LAN port > RS232**).
- With the **Controls** menu of the software, select **RS232/LAN setup,** then select the **COM** port number corresponding to the connection of the device.



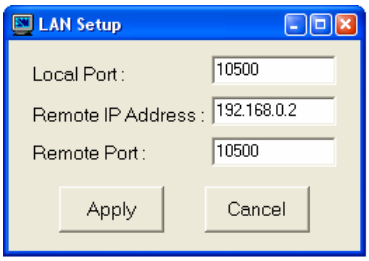
If the communication is OK, the message "**Device connected**" is displayed as well as the model in the windows title bar.

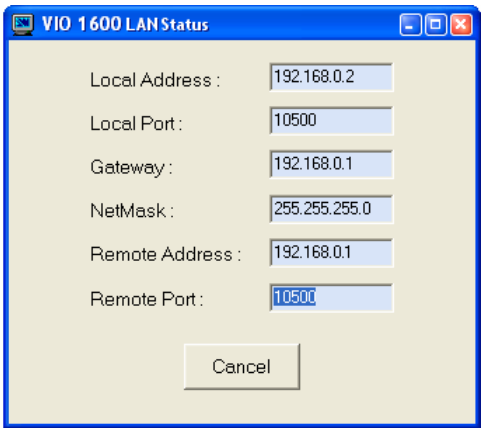
6-3. COMMUNICATION SETUP (continued)

• **CASE OF LAN PORT:**

- With the front panel display menu of the device, verify the configuration of the LAN communication port (**CONTROL > LAN setup**), then activate the LAN communication port (**CONTROL > RS232/LAN port > LAN**).
- With the **Controls** menu of the software, select **RS232/LAN setup** and **LAN Setup**. Then configure the **Local port**, the **Remote IP address** and the **Remote port** and click on **Apply** to setup the new values. The software will also display **Device connected**.

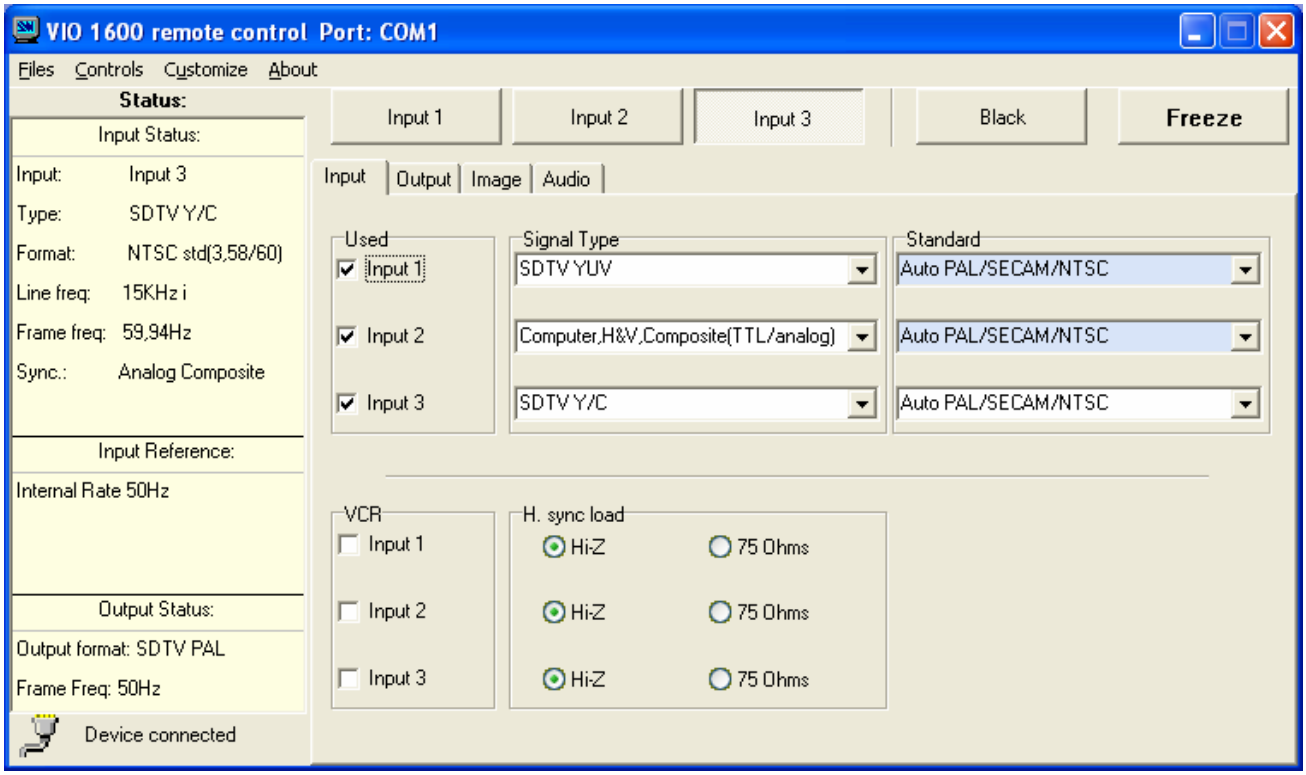
NOTE: To verify the LAN status of your device: Select **LAN status** in the **Controls** menu.





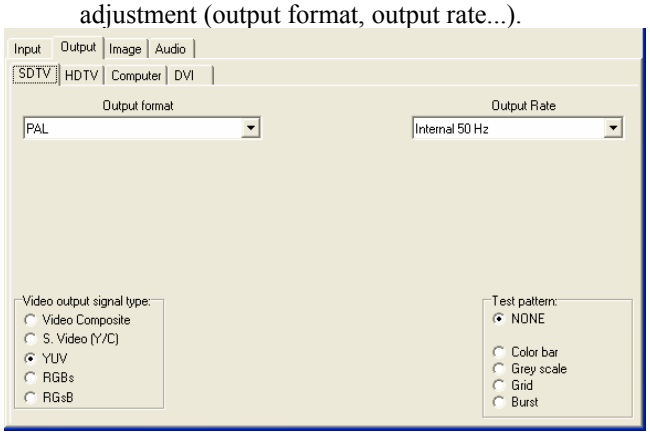
6-4. USING THE SOFTWARE

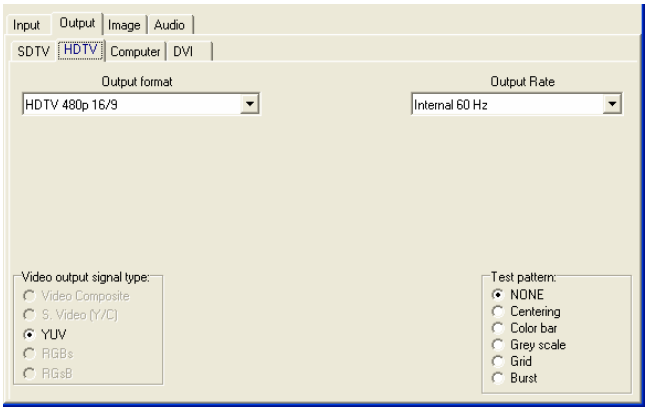
① Click on the **Input** tab and select the **Signal Type** for each input. Then make the others adjustments (video **Standard**...) and disable the unused inputs (**Used** section).

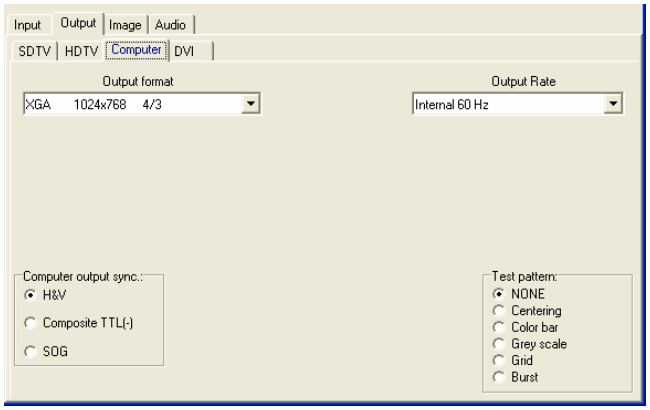


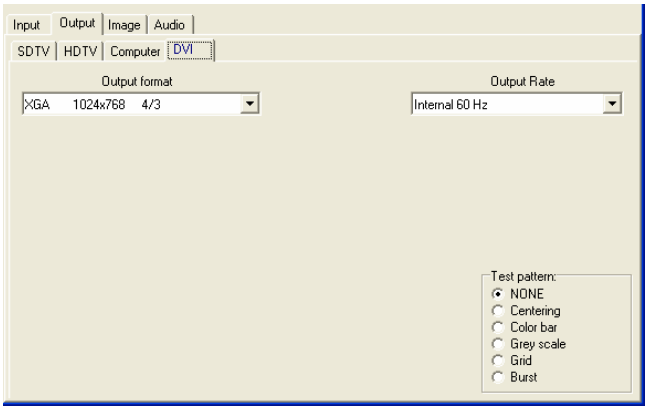
6-4. USING THE SOFTWARE (continued)

② Click on the **Output** tab, then click on the tab corresponding to the needed output type, then select the needed adjustment (output format, output rate...).

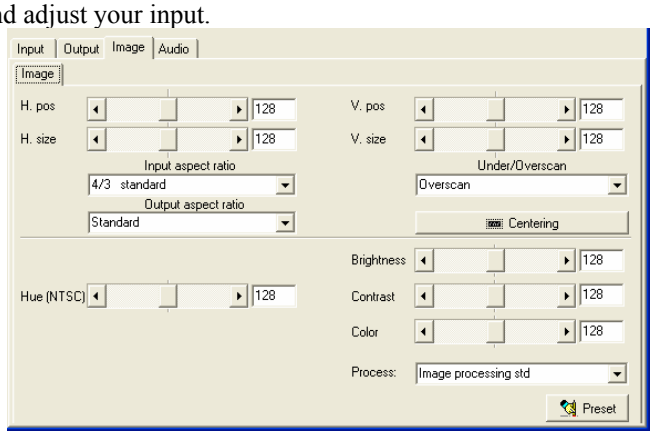




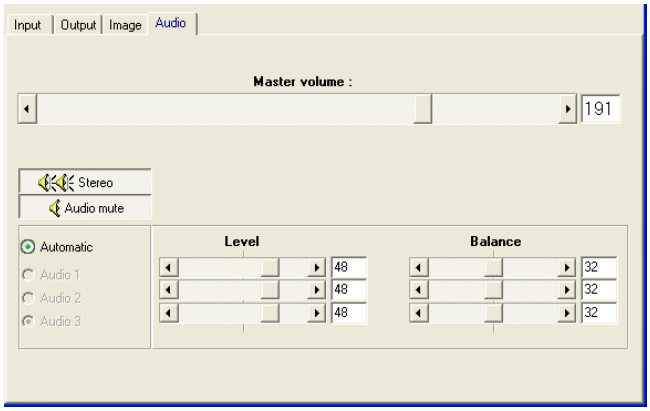




③ Click on the **Image** tab and adjust your input.



④ Click on the **Audio** tab and select **Automatic** (follow switching mode) or an Audio source (breakaway mode). Then adjust the **Level** and the **Balance** of each audio source.



CHAPTER 7 : TECHNICAL SPECIFICATIONS

7-1. COMPUTER & VIDEO INPUTS

- **ANALOG COMPUTER**

Connectors:	HD15 (inputs #2 & 3), BNC (input #1) and DVI-I (input #1).
Line frequency:	Up to 110 kHz.
Frame frequency:	Up to 130 Hz.
Resolution:	Up to 1600 x 1200 @ 60Hz.
Sync. types:	RGBHV, RGB/S, RGsB (Sync On Green).
Levels:	R, G, B = 0.7 Vp/p. H & V Sync = TTL Composite Sync = TTL and 0.3 V. SOG (Sync On Green) = 0.3 V.
Impedance:	R, G, B = 75 ohms. H = 75 ohms or Hi-Z. V = Hi-Z.

- **DIGITAL COMPUTER INPUT**

Connectors:	DVI-I (input #1).
Format:	Digital Visual Interface (DVI) TMDS single link.
Resolution:	Up to 1600 x 1200 @ 60Hz BR (reduced blanking).

- **RGB/S VIDEO**

Connectors:	HD15 (inputs #2 & 3), BNC (input #1) and DVI-I (input #1).
Frequency:	15.625 kHz / 50 Hz (625 lines). 15.734 kHz / 60 Hz (525 lines).
Levels:	R, G, B = 0.7 Vp/p. SYNC. = 0.3 Vp/p or TTL.
Impedance:	RGB = 75 ohms. SYNC. = 75 ohms or Hi-Z.

- **COMPONENT**

Connectors:	RCA (input #3), BNC (input #1), HD15 (inputs #2 & 3) and DVI-I (input #1).
Frequency:	15.625 kHz / 50 Hz (625 lines). 15.734 kHz / 60 Hz (525 lines).
Levels:	Y = 1 Vp/p (0.7 V Luma + 0.3 V Sync.). R-Y = 0.7 Vp/p. B-Y = 0.7 Vp/p.
Impedance:	Y, R-Y, B-Y = 75 ohms.

- **HDTV**

Connectors:	RCA (input #3), BNC (input #1), HD15 (inputs #2 & 3) and DVI-I (input #1).
Formats:	720p &1080i.
Levels:	Y = 1 Vp/p (0.7 V + sync.). R-Y = 1 Vp/p (0.7 V + sync.). B-Y = 1 Vp/p (0.7 V + sync.).
Sync.:	Tri-level: ±0.3V (positive/negative). Bi-level: 0.3V (negative).
Impedance:	75 ohms.

7-1. COMPUTER & VIDEO INPUTS (continued)

- **S.VIDEO**

Connectors: 4-pin mini DIN (input #3), RCA (input #3), BNC (input #1), HD15 (inputs #2 & 3) and DVI-I (input #1).

Standards: PAL (15.625 kHz / 50 Hz - 625 lines) or NTSC (15.734 kHz / 60 Hz - 525 lines).

Levels: Y = 1 Vp/p.
C = 0.3 Vp/p.

Impedance: 75 ohms.

- **COMPOSITE VIDEO**

Connectors: BNC (inputs #1 & 2), RCA (input #3), HD15 (inputs #2 & 3) and DVI-I (input #1).

Standards: PAL / SECAM (15.625 kHz / 50 Hz - 625 lines) or NTSC (15.734 kHz / 60 Hz - 525 lines).

Level: 1 Vp/p.

Impedance: 75 ohms.

- **SDI (V301-ID1 & VU301-IOD1 models only):**

Connector: BNC (input #2).

Signal: 270 Mbps serial digital input conforming to SMPTE 259M.

Impedance: 75 ohms.

- **HDSDI (V301-ID1 & VU301-IOD1 models only):**

Connector: BNC (input #2).

Data rate: 720p @ 59.94 or 60 Hz: 1.5 Gbps serial digital input conforming to SMPTE 296M.
1080i @ 59.94 or 50 or 60 Hz: 1.5 Gbps serial digital input conforming to SMPTE 274M.

Impedance: 75 ohms.

7-2. GENLOCK INPUT (VU301-IOD1 model only)

Connector: BNC.

Standards: SDTV black burst or black HD-YUV.

Levels: 1 Vp/p.

Impedance: 75 ohms or Hi-Z.

7-3. OUTPUTS

- **ANALOG COMPUTER**

Connectors:	HD15, DVI-I and BNC.
Line frequency:	Up to 110 kHz.
Frame frequency:	Up to 130 Hz.
Resolution:	Up to 1600 x 1200.
Sync. types:	RGBHV, RGB/S, RGsB (Sync On Green).
Levels:	R, G, B = 0.7 Vp/p. H & V Sync = TTL Composite Sync = TTL and 0.3 V. SOG (Sync On Green) = 0.3 V.
Impedance:	R, G, B = 75 ohms.

- **DIGITAL COMPUTER**

Connector:	DVI-I.
Format:	Digital Visual Interface (DVI) TMDS Single link.
Resolution:	Up to 1600 x 1200 @ 60 Hz BR (reduced blanking)

- **RGB/S VIDEO**

Connectors:	HD15, DVI-I and BNC.
Frequency:	15.625 kHz - 50 Hz (625 lines) or 15.734 kHz - 60 Hz (525 lines).
Levels:	R, G, B = 0.7 Vp/p. SYNC. = 0.3 Vp/p or TTL.
Impedance:	RGB = 75 ohms. SYNC. = 75 ohms or Hi-Z.

- **COMPONENT**

Connectors:	HD15, DVI-I and BNC.
Frequency:	15.625 kHz - 50 Hz (625 lines) or 15.734 kHz - 60 Hz (525 lines).
Levels:	Y = 1 Vp/p, R-Y = 0.7 Vp/p, B-Y = 0.7 Vp/p.
Impedance:	Y, R-Y, B-Y = 75 ohms.

- **HDTV**

Connectors:	HD15, DVI-I and BNC.
Formats:	480p & 720p.
Levels:	Y = 1 Vp/p, R-Y = 0.7 Vp/p, B-Y = 0.7 Vp/p.
Sync.:	Tri-level: ±0.3V (positive/negative). Bi-level: 0.3V (negative).
Impedance:	75 ohms.

- **S.VIDEO**

Connectors:	4-pin mini DIN, HD15, DVI-I and BNC.
Standards:	PAL (15.625 kHz / 50 Hz - 625 lines) or NTSC (15.734 kHz / 60 Hz - 525 lines).
Levels:	Y = 1 Vp/p. C = 0.3 Vp/p (Chroma Burst).
Impedance:	75 ohms.

7-3. OUTPUTS (continued)

- **COMPOSITE VIDEO**

Connectors: HD15, DVI-I and BNC.

Standards: PAL / SECAM (15.625 kHz / 50 Hz - 625 lines) or NTSC (15.734 kHz / 60 Hz - 525 lines).

Level: 1 Vp/p.

Impedance: 75 ohms.

- **SDI (VU301-IOD1 model only):**

Connector: BNC.

Formats: 480i (NTSC) or 576i (PAL).

Data rate: 270 Mbps serial digital conforming to SMPTE 259M.

Impedance: 75 ohms.

- **HDSDI (VU301-IOD1 model only):**

Connector: BNC.

Formats: 720p (@ 50, 59.94 or 60 Hz) or 1080i (@ 50, 59.94 or 60 Hz.)

Data rate: 1.5 Gbps serial digital conforming to SMPTE 296M / SMPTE 274M.

Impedance: 75 ohms.

7-4. AUDIO INPUTS

Connectors: RCA (inputs #1 & 3) and Jack 3.5 (input #2).

Levels: Vi = + 18 dBu (max).
Zi = 20 kΩ unbalanced.

7-5. AUDIO OUTPUT

Connectors: RCA (inputs #1 & 3) and Jack 3.5 (input #2).

Levels: Vo = + 18 dBu (+12 dBu with 300Ω load).
Zo = 300 Ω unbalanced.
G = 0 dB nominal, G = + 6 dB / - ∞ adjustable with Master volume.

7-6. COMMUNICATION PORTS

- **RS-232 (on DB9 female connector)**

Data Rate: 9600 Bauds, 8 data bits, 1 stop bit, no parity bit, no flow control.

- **LAN (Optional on RJ45 connector)**

Protocol: TCP (Transmission Control Protocol) / UDP (User Datagram Protocol).

Data Rate: 10 / 100 Mbps.

LED functions (on RJ45 connector):

Top LED	Bottom LED	Meaning
OFF	OFF	No link
OFF	ON	100 BASE-T link.
ON	OFF	10 BASE-T link.

7-7. ENVIRONMENTAL

Power Supply: Internal CE / UL / CSA / IEC 950 (50 W), universal, automatic.
Input: 100 VAC to 250 VAC; 50-60 Hz; I = 1 A Max.

Storage Temperature: - 25 °C to + 85 °C (- 13 °F to + 185 °F).

Operating temperature: 0 °C to + 50 °C (32 °F to 122 °F).

Maximum ambient operating temperature: < 40 °C (< 104 °F).

Hygrometry: 10% to 80% (without condensation).

Dimensions: D 300 x W 452 x H 44 mm / D 11.8" x W 17.8" x H 1.74".
Compatible with the 19" rack (height = 1 unit).

Weight: 3.8 kg / 8.4 lbs.

APPENDIX A: PROGRAMMER'S GUIDE

A-1: INTRODUCTION

If you need to use your own Software Control program from a PC or WORKSTATION with an RS-232 port, the device allows communication through an ASCII code protocol.
The device treats any character that it receives on the RS-232 as a possible command but only accepts legal commands. There is no starting/ending code needed in a command string.
A command can be a single character typed on a keyboard and does not require any special character before or after it. (It is not necessary to press "ENTER" on the keyboard). A command can be preceded by a value (See chapter A-2: COMMANDS STRUCTURE).
When the device receives a valid command, it will execute the command. Then it will send back the status of the parameters that have changed due to this command.
If the command cannot be executed (value out of range, no signal on the selected input), the device will just sends back the current status of the corresponding parameters.
If the command is invalid, an error response will be returned to the control device. All responses returned to the control device end with a carriage return <CR> and a line feed <LF> signaling the end of the response character string (see chapter A-3: RÉPONSES D'ERREUR).

A-2: COMMANDS STRUCTURE

Commands are usually composed of a numerical value followed by the command character. The characters used without any numerical value return the current setting of the command.
Command = Value (optional) + Character.

Examples / *Exemples*:

Command / *Commande*		**Response *Réponse***	**Description**
Value/ *Valeur*	Character / *Caractère*		
none *aucune*	**FY**	**OSYN**	Read the output sync type. *Lit le type de synchro.*
10	**V**	**VP10**	Set Vertical position to 10. *Règle la position horizontale à 10.*

A-3: ERROR RESPONSES

When the device receives from the control device an invalid command or value, it returns an error response:

Command / *Commande*		**Response *Réponse***	**Description**
Value/ *Valeur*	Character / *Caractère*		
none *aucune*	**z**	**E10**	Invalid command. / *Commande invalide.*
70260	**H**	**E13**	Invalid value. / *Valeur invalide.*

ANNEXE A: GUIDE DE PROGRAMMATION

A-1: INTRODUCTION

Si vous souhaitez utiliser votre propre logiciel de contrôle avec votre PC, MAC ou Station de Travail par un port RS-232, l'appareil peut communiquer par simple émission / réception de caractères ASCII.
L'appareil traite tous les caractères reçus sur son port RS-232 comme des commandes possibles; seules certaines commandes sont reconnues et acceptées.
Une commande est constituée d'un ou deux caractères sans code de contrôle ni avant, ni après. Il n'est pas nécessaire d'appuyer sur "ENTER" du clavier. Une commande peut être précédée d'une valeur (voir chapitre A-2: STRUCTURE D'UNE COMMANDE).
Lorsque l'appareil reçoit une commande valide, il exécute cette commande puis renvoie à l'appareil de contrôle l'état de tous les paramètres qui ont été modifiés suite à l'envoie de cette commande.
Si la commande n'est pas reconnue (valeur en dehors de la plage, pas de signal sur l'entrée sélectionnée), l'appareil renvoie uniquement les états des paramètres correspondant.
Si la commande est invalide, une réponse d'erreur sera retournée à l'appareil de contrôle. Toute réponse faite à l'unité de contrôle se termine par un retour à la ligne et par un saut de ligne (CR / LF) signalant la fin de la commande de réponse. (Voir chapitre: A-3: RÉPONSES D'ERREUR).

A-2: STRUCTURE D'UNE COMMANDE

Les commandes sont généralement constituées d'une valeur numérique suivit par 1 ou 2 lettres de commande. Une lettre utilisée sans valeur numérique renvoie l'état de la commande.
Commande = Valeur (optionnelle) + Caractère

A-3: RÉPONSES D'ERREUR

Lorsque l'appareil reçoit de l'appareil de contrôle une valeur ou une commande invalide, il retourne les messages d'erreur suivants:

A-4: COMMANDS AND RESPONSES TABLE

A-4: TABLE DES COMMANDES ET RÉPONSES

COMMAND *COMMANDE*	RESPONSE *RÉPONSE*	COMMAND DESCRIPTION *DESCRIPTION DE LA COMMANDE*	TYPE	VALUE /*VALEUR*		
				MIN	MAX	DESCRIPTION
FRONT PANEL COMMANDS / *COMMANDES DE LA FACE AVANT*						
CC	CH	Selected input.	**Rd**	0	3	1 = INPUT #1 2 = INPUT #2 3 = INPUT #3
CN	CHN	Input selection.	Rd/Wr	0	3	
yC	ACAD	Image centering.	Rd/Wr	0	1	1 = CENTERING action (automatic reset).
z	FRZ	FREEZE.	Rd/Wr	0	1	0 = inactive 1 = active.
FO	OBLK	BLACK output screen selection.	Rd/Wr	0	1	1 = BLACK.
INPUT COMMANDS / *COMMANDES D'ENTRÉE*						
PC	PCH	Input selection for adjustment.	Rd/Wr	0	3	0 = All inputs 1 = INPUT #1 2 = INPUT #2 3 = INPUT #3
PE	PEN	Input disabling (according to PCH).	Rd/Wr	0	1	0 = Input disable 1 = Input enable
PL	PLD	H sync load selection (according PCH)	Rd/Wr	0	1	0 = Hi-Z load 1 = 75Ω load
PR	PRGB	Input signal type selection. (according to PCH).	Rd/Wr	0	12	0 = Computer H&V/C 1 = Computer SOG 2 = Computer DVI 3 = SDTV Composite 4 = SDTV S.VIDEO 5 = SDTV YUV 6 = SDTV RGBS 7 = SDTV RGsB 8 = SDTV RGBS ana. 9 = SDI 10 = HDTV YUV 11 = HDSDI 12 = Audio only
PI	PSTD	Input standard selection (according to PCH).	Rd/Wr	0	4	0 = NTSC / PAL / SECAM 1 = NTSC 2 = PAL 3 = SECAM 4 = Black & White
PP	PPRC	VCR mode (according to PCH).	Rd/Wr	0	1	0 = OFF 1 = ON
OUTPUT COMMANDS / *COMMANDES DE SORTIE*						
FM	OFMT	Output format selection.	Rd/Wr	0	44	0 = SDTV NTSC 1 = SDTV PAL 2 = VGA@50 3 = VGA@60 4 = VGA@72 5 = VGA@75 6 = WVGA@50 7 = WVGA@60 8 = WVGA@72 9 = WVGA@75 10 = SVGA@50 11 = SVGA@60 12 = SVGA@72 13 = SVGA@75 14 = 1280x720@50 15 = 1280x720@60 16 = 1280x720@72 17 = 1280x720@75 18 = XGA@50 19 = XGA@60 20 = XGA@72 21 = XGA@75 22 = WXGA@50 23 = WXGA@60 24 = WXGA@72 25 = WXGA@75 26 = SWXGA@50 27 = SWXGA@60 28 = SWXGA@72 29 = SWXGA@75 30 = SXGA@50 31 = SXGA@60 32 = SXGA@72 33 = SXGA@75 34 = SXGA+@50 35 = SXGA+@60 36 = SXGA+@72 37 = SXGA+@75 38 = UXGA@50 39 = UXGA@60 40 = 480p@60 41 = 720p@50 42 = 720p@59.94 43 = 720p@60 44 = 1080i@50
FG	OSIG	Video output type selection.	Rd/Wr	0	4	0 = Composite video 1 = S.VIDEO 2 = YUV 3 = RGBS 4 = RGsB
FD	ODVI	DVI output selection.	Rd/Wr	0	1	0 = DVI disable 1 = DVI enable.
FS	OSDI	SDI output selection	Rd/Wr	0	1	0 = SDI out disable 1 = SDI out enable.
XR	REFR	Output rate selection.	Rd/Wr	0	1	0 = Internal rate 1 = follow input #1.
FY	OSYN	Output sync selection.	Rd/Wr	0	2	0 = H &V 1 = Composite 2 = SOG.
FV	OOVR	Underscan / overscan (video output).	Rd/Wr	0	1	0 = underscan 1 = overscan
pm	PAT	Test pattern.	Rd/Wr	0	5	0 = no pattern 1 = centering 2 = color bar 3 = grey scale 4 = grid 5 = burst

NOTE: **Rd** = Read only command / *Commande de lecture.* Rd/Wr = Read and write command / *Commande de lecture et d'écriture.*

COMMAND *COMMANDE*	RESPONSE *RÉPONSE*	COMMAND DESCRIPTION *DESCRIPTION DE LA COMMANDE*	TYPE	VALUE /*VALEUR*		
				MIN	MAX	DESCRIPTION
IMAGE COMMANDS / *COMMANDES DU MENU IMAGE*						
H	HP	Horizontal position.	Rd/Wr	0	255	
V	VP	Vertical position.	Rd/Wr	0	255	
W	HW	Horizontal size.	Rd/Wr	0	255	
S	VS	Vertical size.	Rd/Wr	0	255	
ZH	ZHP	Zoom horizontal position.	Rd/Wr	0	255	
ZV	ZVP	Zoom vertical position.	Rd/Wr	0	255	
ZW	ZHS	Zoom horizontal size.	Rd/Wr	0	255	
ZS	ZVS	Zoom vertical size.	Rd/Wr	0	255	
QA	ASP	Input aspect ratio selection.	Rd/Wr	0	2	0 = 4/3 standard 1 = 16/9 letterbox 2 = WS anamorphic.
QS	OASP	Output aspect ratio selection	Rd/Wr	0	3	0 = Standard 1 = Full screen 2 = Crop 3 = Custom (adjustment with ZH, ZV, ZW, ZS)
B	BRG	Brightness adjustment (video)or Black level adjustment (computer).	Rd/Wr	0	255	
D	CON	Contrast adjustment (video).	Rd/Wr	0	255	
O	COL	Color adjustment (video).	Rd/Wr	0	255	
T	HUE	Hue adjustment (video NTSC).	Rd/Wr	0	255	
QO	OVR	Underscan / overscan (video).	Rd/Wr	0	1	0 = underscan 1 = overscan
QP	PRO	Sharpness adjustment (video).	Rd/Wr	0	7	0 = standard level 1 = level 1 2 = level 2..... 7 = level 7.
QR	RLV	Red level adjustment (computer).	Rd/Wr	0	127	
QG	GLV	Green level adjustment (computer).	Rd/Wr	0	127	
QB	BLV	Bleu level adjustment (computer).	Rd/Wr	0	127	
MC	CLK	Pixels clock adjustment (computer).	Rd/Wr	0	65535	
QF	FLK	Anti-flicker level (video output)	Rd/Wr	0	3	
MP	PHA	Pixels phase adjustment (computer).	Rd/Wr	0	31	
yP	PRES	PRESET.	Rd/Wr	0	1	1 = PRESET action (automatic reset).
AUDIO COMMANDS / *COMMANDES DU MENU AUDIO*						
RV	AVOL	Master volume adjustment.	Rd/Wr	0	255	
RO	AMOD	Auto follow or breakaway mode.	Rd/Wr	0	1	0 = auto follow 1 = breakaway
RC	ACH	Audio input selection.	Rd/Wr	1	3	1 = AUDIO IN #1. 2 = AUDIO IN #2 3 = AUDIO IN #3
RL	ALVL	Audio level (works with PC command).	Rd/Wr	0	63	
RB	ABAL	Audio balance (works with PC).	Rd/Wr	0	63	
RM	AMUT	Audio mute.	Rd/Wr	0	1	0 = MUTE OFF 1 = MUTE ON
RS	AMNO	Mono/stereo mode selection.	Rd/Wr	0	1	0 = STEREO 1 = MONO

NOTE: **Rd** = Read only command / *Commande de lecture.* Rd/Wr = Read and write command / *Commande de lecture et d'écriture.*

COMMAND *COMMANDE*	RESPONSE *RÉPONSE*	COMMAND DESCRIPTION *DESCRIPTION DE LA COMMANDE*	TYPE	VALUE /*VALEUR*		
				MIN	MAX	DESCRIPTION
CONTROLS COMMANDS / *COMMANDES DU MENU CONTROL*						
xU	VERU	Device version.	**Rd**	0	65535	Example: 104 = Version 1.4
xI	I_	Identification number.	**Rd**	0	65535	Value displayed in hexadecimal in the device.
yo	OPT	Options available.	**Rd**	0	65535	0 = without option.
QE	EPD	2:2 pull down correction.	Rd/Wr	0	1	0 = off 1 = auto.
yl	LOCK	Key locking.	Rd/Wr	0	1	0 = unlocks 1 = locks
yi	EISP	Auto-lock	Rd/Wr	0	1	0 = off 1 = on.
ye	EPOS	Erase memories.	Rd/Wr	0	1	1 = erase all memories (automatic reset).
Y	FRES	DEFAULT VALUE.	Rd/Wr	0	1	1 = Default value action (automatic reset).
fr	BFCR	Red level adjustment of the FADE.	Rd/Wr	0	255	
fb	BFCB	Blue level adjustment of the FADE.	Rd/Wr	0	255	
fg	BFCG	Green level adjustment of the FADE.	Rd/Wr	0	255	
COMMUNICATION PORT COMMANDS / *COMMANDES DE COMMUNICATION*						
ne	LANE	Communication port selection	Rd/Wr	0	1	0 = RS232 1 = LAN
nr	LANR	Reset of the LAN parameters.	Rd/Wr	0	1	1 = reset.
ns	LANS	Store the LAN parameters.	Rd/Wr	0	1	1 = store.
na	ADIP	IP address and port selection (for modification)	Rd/Wr	0	3	0 = all IP address / ports 1 = IP local address / local port 2 = IP remote address / remote port 3 = IP gateway address.
nw	IPA_	First byte of the address selected by the **na** command.	Rd/Wr	0	255	
nx	IPB_	Second byte of the address selected by the **na** command.	Rd/Wr	0	255	
ny	IPC_	Third byte of the address selected by the **na** command.	Rd/Wr	0	255	
nz	IPD_	Forth byte of the address selected by the **na** command.	Rd/Wr	0	255	
np	PORT	Number of the port (local or remote) selected by the **na** command.	Rd/Wr	0	65500	local port: 10000 to 10999. remote port: 0 to 65500.
nk	NTMK	Netmask.	Rd/Wr	0	24	Value = number of bit to 0 (from right). example: 2 ▸ 255.255.255.252 3 ▸ 255.255.255.248 ..... 8 ▸ 255.255.255.0..... 24 ▸ 255.0.0.0
nt	TCP	Protocol selection.	Rd/Wr	0	1	0 = UDP 1 = TCP
GENLOCK COMMANDS (ULTRA VIO only) / *COMMANDES DU GENLOCK (ULTRA VIO uniquement)*						
GR	GENR	Genlock reference selection	Rd/Wr	0	3	0 = internal 1 = SDTV 2 = HDTV 3 = error
GA	GENA	Genlock reference status	Rd	0	3	0 = internal 1 = SDTV 2 = HDTV 3 = error
GF	GENF	Genlock type	Rd	0	10	0 = no signal. 1 = not compatible. 2 = NTSC (3.58/60). 3 = PAL (4.43/50). 4 = 1080i @ 50 Hz. 5 = 1080i @ 59.94 Hz. 6 = 1080i @ 60 Hz. 7 = 720p @ 50 Hz. 8 = 720p @ 59.94 Hz. 9 = 720p @ 60 Hz. 10 = 480p @ 60 Hz.
GT	GENT	Frame frequency of the genlock signal	Rd	0	65535	Value in hundredth of Hz
GS	GENS	Sub carrier adjustment of the genlock.	Rd/Wr	0	255	
GP	GENP	Horizontal adjustment on the genlock	Rd/Wr	0	127	
GL	GENL	Genlock input load	Rd/Wr	0	1	0 = Hi-Z 1 = 75 ohms
OTHERS COMMANDS / *AUTRES COMMANDES*						
yS	STO	Image parameters storing.	Rd/Wr	0	1	1 = STORE action (automatic reset).
?	DEV	Device type.	**Rd**	0	65535	30 = VIO1600 35 = ULTRA VIO
#	DEV.....	Send all device parameters.	**Rd**			

NOTE: **Rd** = Read only command / *Commande de lecture.* Rd/Wr = Read and write command / *Commande de lecture et d'écriture.*

COMMAND *COMMANDE*	RESPONSE *RÉPONSE*	COMMAND DESCRIPTION *DESCRIPTION DE LA COMMANDE*	TYPE	VALUE /*VALEUR*		
				MIN	MAX	DESCRIPTION
STATUS COMMANDS / *COMMANDES D'ÉTATS*						
U	UNIT	Measures unity in kHz.	**Rd**	0	65535	
IL	ILD	This command allows to calculate the input line frequency in Hz.	**Rd**	0	65535	Line frequency (in kHz) = (UNIT VALUE) ÷ (ILD VALUE).
ID	IFD	This command allows to calculate the input frame frequency in Hz.	**Rd**	0	65535	Frame frequency (in Hz) = (Line frequency in Hz) ÷ (IFD VALUE).
IP	IPS	Input Sync. detection.	**Rd**	0	1	0 = not detected 1 = Sync. detected.
IH	IHP	Sign of the horizontal input Sync.	**Rd**	0	1	0 = negative 1 = positive.
IV	IVP	Sign of the vertical input Sync.	**Rd**	0	1	0 = negative 1 = positive.
IK	IST	Input Sync type detection.	**Rd**	0	3	0 = H &V. 2 = SOG. 1 = Composite (TTL). 3 = Composite (ana)
II	IIN	Interlaced signal detection.	**Rd**	0	1	0 = not interlaced 1 = interlaced.
IO	IOO	"Out of range" signal detection.	**Rd**	0	1	0 = In range 1 = Out of range.
IF	IFA	Standard input signal detection.	**Rd**	0	34	0 = no signal. 1 = not compatible. 2 = NTSC (3.58/60). 3 = PAL (4.43/50). 4 = SECAM (50Hz). 5 = B & W (50Hz). 6 = B & W (60Hz). 7 = YUV 50 Hz. 8 = YUV @ 60 Hz. 9 = RGB @ 50 Hz. 10 = RGB @ 60 Hz. 11 = VGA1 350L. 12 = VGA2 400L. 13 = VGA3 480L. 14 = PLASMA 42". 15 = WVGA 16 = SVGA. 17 = 720pc 18 = MAC. 19 = XGA. 20 = WXGA. 21 = SWXGA. 22 = PLASMA 50". 23 = MAC 21". 24 = SXGA. 25 = UXGA. 26 = SXGA+ 27 = 1035i @ 50 Hz. 28 = 1035i @ 60 Hz. 29 = 1080i @ 50 Hz. 30 = 1080i @ 60 Hz. 31 = 480p @ 60 Hz. 32 = 720p @ 50 Hz. 33 = 720p @ 60 Hz. 34 = 1080sf24
XF	REFF	Standard of the synchronized input.	**Rd**	0	34	
XT	REFT	Frame frequency of the synchronized input.	**Rd**	0	65535	Value in hundredth of Hz.
XA	REFA	Synchronized input.	**Rd**	0	1	0 = Internal rate 1 = follow input #1.
ut	TKEV	Transition availability.	**Rd**	0	1	1 = New input ready to commute.

NOTE: **Rd** = Read only command / *Commande de lecture.* Rd/Wr = Read and write command / *Commande de lecture et d'écriture.*

A-5: ASCII / HEX / DEC TABLE

A-5: TABLE ASCII / HEX / DEC

ASCII	HEX	DEC	ASCII	HEX	DEC	ASCII	HEX	DEC
space	20	32	@	40	64	`	60	96
!	21	33	A	41	65	a	61	97
"	22	34	B	42	66	b	62	98
#	23	35	C	43	67	c	63	99
$	24	36	D	44	68	d	64	100
%	25	37	E	45	69	e	65	101
&	26	38	F	46	70	f	66	102
’	27	39	G	47	71	g	67	103
(	28	40	H	48	72	h	68	104
)	29	41	I	49	73	i	69	105
*	2A	42	J	4A	74	j	6A	106
+	2B	43	K	4B	75	k	6B	107
,	2C	44	L	4C	76	l	6C	108
-	2D	45	M	4D	77	m	6D	109
.	2E	46	N	4E	78	n	6E	110
/	2 F	47	O	4F	79	o	6F	111
0	30	48	P	50	80	p	70	112
1	31	49	Q	51	81	q	71	113
2	32	50	R	52	82	r	72	114
3	33	51	S	53	83	s	73	115
4	34	52	T	54	84	t	74	116
5	35	53	U	55	85	u	75	117
6	36	54	V	56	86	v	76	118
7	37	55	W	57	87	w	77	119
8	38	56	X	58	88	x	78	120
9	39	57	Y	59	89	y	79	121
:	3A	58	Z	5A	90	z	7A	122
;	3B	59	[	5B	91	{	7B	123
<	3C	60	\	5C	92	|	7C	124
=	3D	61	]	5D	93	}	7D	125
>	3E	62	^	5E	94	~	7E	126
?	3F	63	_	5F	95	DEL	7F	127

WARRANTY

Analog Way warrants the product against any defects in materials and workmanship for a period of three years from the date of purchase (back to the factory).

In the event of any malfunction during the warranty period, Analog Way will, at its discretion, repair or replace the defective units, including free materials and labor.

This warranty does not apply if the product has been:
- improperly installed or abused,
- handled with improper care,
- used or stocked in abnormal conditions,
- modified, opened,
- damaged by fire, war, or Natural disasters (Acts of God).

In no way shall Analog Way be responsible for direct or indirect loss of profit or consequential damages resulting from any defect in this product.

In case of any problem, get the serial number of the unit, a description of the problem, and then call your authorized dealer.

GARANTIE

Analog Way garantie le produit contre les défauts matériels et vices de fabrication, pour une période de 3 ans à partir de la date d'achat (retour en nos locaux).

En cas de mauvais fonctionnement pendant la période de garantie, Analog Way décidera, à son choix, de réparer ou de remplacer l'appareil défectueux, incluant gratuité des pièces et de la main d'œuvre.

Cette garantie ne s'applique pas si le produit a été :
- utilisé ou installé en dehors de son cadre de fonctionnement,
- manipulé sans aucune précaution,
- utilisé ou stocké dans des conditions anormales,
- modifié, ouvert,
- endommagé par le feu, guerre ou catastrophes naturelles.

En aucun cas Analog Way ne peut être responsable d'une perte de profit ou de dommages directs ou indirects consécutifs à un mauvais fonctionnement du produit.

En cas de problème, préparer une description détaillée de la panne, relever le numéro de série de l'appareil, puis contacter votre revendeur agréé.